

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.

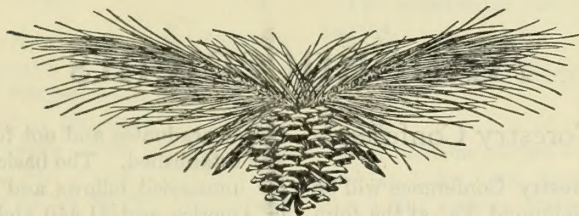




F76Fw

LIBRARY  
RECEIVED  
★ JAN 27 1930 ★  
U. S. Department of Agriculture

# FOREST WORKER



November, 1929

---

Issued bimonthly by the FOREST SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE



## CONTENTS

	Page
State forestry.....	1
Education and extension.....	4
Forest Service notes.....	5
General forest news.....	7
Foreign notes.....	10
Personals.....	11
Bibliography.....	12
Index for 1928.....	14

## Announcements

### Virginia Commercial Forestry Conference

A Virginia Commercial Forestry Conference will be held February 11 and 12 in Richmond, Va., at the John Marshall Hotel. Arrangements for the conference are being made by the Virginia State Chamber of Commerce and a general committee including State Forester Chapin Jones, W. duB. Brookings, in charge of the conservation division of the United States Chamber of Commerce, and representatives of the lumber and wood-using industries, recreational interests, and women's clubs.

### National Research Fellowships in Agriculture and Forestry Available

The National Research Council announces the availability of national research fellowships in the biological sciences, including agriculture and forestry. These fellowships, supported by the Rockefeller Foundation, are for study and research in America or abroad, and are open to citizens of both sexes of the United States and Canada who have the Ph. D. degree or its equivalent. They are intended primarily for comparatively

recent graduates and not for those already professionally established. The basic annual stipends are \$1,800 for unmarried fellows and \$2,300 for married fellows in America and \$1,440 and \$2,400, respectively, with travel allowance in addition, for fellows appointed to study in Europe. Awards are made for one year, but fellowships may be renewed. Fellows for 1930-31 will be chosen at two meetings of a board appointed by the National Research Council. Applications filed before January 1 will be considered at a meeting held the first week in February. To be considered at the second meeting, applications must be filed before April 1.

The choice of the institution in which he shall work is made by the fellow, subject to the approval of the fellowship board. The appointments are for full time, and no other remunerative or routine work is permitted.

Inquiries in regard to the fellowships should be addressed to the chairman, Board of National Research Fellowships in the Biological Sciences, National Research Council, Washington, D. C., or to Dr. A. F. Woods, Director of Scientific Work, Department of Agriculture, Washington, D. C.

The FOREST WORKER is published by the Forest Service, United States Department of Agriculture, Washington, D. C. Jean Kerr, editor. Material offered for publication in the FOREST WORKER should be addressed to the editor.

Because the free edition is necessarily limited, this periodical can be distributed without charge outside of the Government service only to such persons and organizations as State forestry and conservation officials, State agricultural extension directors, faculties and libraries of forest schools, and forestry associations. Others desiring to obtain copies of the FOREST WORKER can do so by sending 5 cents for a single copy or 25 cents for a year's subscription to the Superintendent of Documents, Government Printing Office, Washington, D. C. Foreign subscriptions: Yearly, 35 cents; single copies, 7 cents.



# FOREST WORKER

Washington, D. C.

NOVEMBER, 1929

Vol. 5, No. 6

## State Forestry

### New York State Forests for Timber Production

The fall of 1929 has seen New York make a vigorous beginning in the development of productive State forests. Something like 1,750,000 trees were planted in October on lands acquired by the State in Cortland, Chenango, and Otsego Counties under the provisions of the Hewitt reforestation law, which authorizes the establishment of State forests for timber production. Six months after the Hewitt law was enacted in the spring of 1929 the State had acquired more than 6,000 acres of land under this authority. The conservation commissioner intends to plant 20,000 acres of productive State forests in 1930, if it is possible to prove title to that much land in time. In preparation for this planting two new forest nurseries have been laid down in the State's southern tier of counties.

In 1929 New York planted 9,135,000 trees on State-owned land, using 2,000,000 of these to reforest game refuges.

### Massachusetts Inventory of Forests

Potential forest area makes up 62 per cent of the total area of Massachusetts, the State department of conservation recently announced on the basis of a town-by-town survey. The classification "potential forest area" includes with present forest area abandoned fields and pastures that are coming up to brush and scattered tree growth. On 80 per cent of the forest area the stands are in general under 35 years of age. Pure northern white pine stands and mixed stands in which northern white pine clearly predominates constitute 22 per cent of the forests in the State, with a relatively good percentage in the upper size classes. Hemlock is found in small patches in nearly all the counties except Plymouth and Barnstable, but spruce is confined to the higher elevations of the Berkshire Hills. The gray birch and red maple type covers 20 per cent of the forest area.

This inventory of Massachusetts forests was begun 14 years ago. Field work has been continued each summer since then by a crew of two or three forestry students working under the direction of a representative of the State forestry organization. In the main the

towns were cruised in strips 1 mile apart, run either north-south or east-west so as to cut the topography.

The expense of the survey was about \$1,000 per county.

### First Florida Forest Fair Held at Lake City

The heavens smiled on the first Florida forest fair, held at Lake City November 13-15, and something like 4,000 visitors turned out to see and hear what the State forest service and kindred organizations are doing. Exhibits contributed from many sources and arranged in Lake City Hall included fire protection and turpentine tools and equipment; a display of forest products; a relief map of the West Bay protective unit showing firebreaks, the locations of the district forester and fire wardens, a miniature lookout tower, and other features of the protection plan; and a chart showing in summary form the fire record for the first year of protection, including all costs. Those viewing the exhibits included many children, who through arrangement of school authorities were brought by classes from the local schools. Twenty-five automobile loads of visitors, principally turpentine operators, lumbermen, and owners of forest land, following a carefully arranged schedule, traveled to the State forest nursery at Raiford, to the experimental naval stores operations of the United States Forest Service at Starke, to a fire tower operated by the Florida Forest Service, and to a pine forest where Austin Cary, of the United States Forest Service, gave a thinning demonstration. Firebreak construction, the raising of pines in nursery beds, forest-tree planting, and improved methods of turpentine were explained as the tools and the results were displayed. At night sessions in the Lake City courthouse I. F. Eldredge discussed forest management and Assistant State Forester Wilson spoke on "new uses for old wood and new possibilities for Florida." The jazz element was supplied by a new lecture truck of the Florida Forest Service, which is equipped to show motion pictures and to accompany them with music. A novel feature of this truck is the fact that the exhibits it carries, including a number of "scenes-in-action," are so arranged as to be brought to view simply by raising the sides of the truck.



## More Progress in Wisconsin Forestry Legislation

The Wisconsin Legislature has followed out with great fidelity the recommendations laid before it in the spring of 1929 by its interim committee on forestry and public lands. Among the resulting laws and revisions of laws special significance attaches to those dealing with county forestry, because of the fact that in Wisconsin tax delinquent lands revert to the county. Wisconsin law now provides that the county board of any county may by resolution acquire land, by tax deed or otherwise, for the purpose of establishing a county forest reserve. (Such a resolution may or may not be submitted to the voters for approval, according to whether the voters petition a referendum.) County-owned lands may be registered under the forest crop taxation law, without payment by the county of the "acreage share" of 10 cents per acre that is levied annually on privately-owned lands so registered. Counties taking tax deeds need not pay delinquent taxes (excess delinquency), the redemption value of outstanding tax certificates, or interest or charges until they sell the land or, if it is entered under the forest crop land taxation law, until the forest crop is harvested. Insufficiency of the sum realized to pay all such claims will not result in further liability of the county. County boards are authorized to block out county-owned forest lands by exchange. An amendment of the county zoning law empowers the counties to set aside for forest and recreation purposes lands that are more suitable for those purposes than for agriculture.

The conservation commission is authorized to block out State forest areas either by selling isolated tracts or the timber on them or by exchanging any State-owned forest lands for other lands, in either public or private ownership, that are adapted to forestry purposes. Receipts from such sales are appropriated for purchasing additional State forest lands or for improving or developing State forest lands.

Any city, village, town, or school district of the State may now acquire and manage lands for forestry purposes, either within or without its territorial limits.

The forest crop land taxation law as revised at this session sets 40 acres as the minimum size for land areas, other than farm wood lots, that may be registered under its provisions. (The law sets no minimum acreage for wood lots; the previous minimum acreage for other land areas was 160.) It provides that 50 per cent of all moneys received by any town on account of forest crop lands within the town shall be apportioned to the various school districts in which the forest crop lands are located; that owners may cut fuel wood for their own use from registered lands without giving notice; and that registered forest crop lands on which the "acreage share" is delinquent for more than three years, or lands on which the amounts

due the State because of withdrawal from registration are delinquent for that length of time, shall become the property of the county. The limitation preventing the entry of lands bearing merchantable timber is removed. The State conservation commission is authorized to employ a fire warden to have charge of fire prevention on forest crop lands, and the scale of appropriations to the commission for carrying out the provisions of the law is raised to the following: Fiscal year 1931 (beginning July 1, 1930), \$70,000; 1932, \$100,000; 1933, \$120,000; 1934, \$125,000; 1935, \$130,000; 1936 and thereafter, \$150,000.

For the first time since the constitutional amendment of 1924, a direct tax was authorized for the support of State forestry activities. It was set at one-twentieth of a mill.

The State income tax law was amended to allow deduction from taxable income of amounts expended in establishing, caring for, and protecting forest crops on lands registered under the forest crop land taxation law.

In the act enabling the United States Government to acquire land in Wisconsin for national forest purposes, the maximum to be acquired for these purposes was raised from 500,000 to 1,000,000 acres.

The legislature's interim committee on forestry is continued, with Senator George W. Blanchard again acting as chairman.

## Fire Report on Southern Mississippi Protection Area

On the Pascagoula Forest Protective Area, in southern Mississippi, 89 per cent of the 560,000 acres of land under protection was kept free from fire in the year ending June 30, 1929, District Forester Kimball reports. During the year 502 fires occurred on the area, of which 83 per cent were incendiary. The average fire burned over 126 acres. A new lookout tower has recently been added to the four previously erected on the area. The telephone system now includes 200 miles of line, with 83 boxes.

A new forest protection area of 100,000 acres known as the Wolf River Area is being organized in Hancock County, Miss.

## New Protection District in West Virginia

West Virginia's forest fire protection system has been extended to a fifth district consisting of the counties of Berkeley, Jefferson, Morgan, Mineral, Hampshire, Hardy, Grant, and Pendleton. The new forest district has been christened Potomac and has been placed under the charge of Mr. C. G. Hamilton as district forester. Mr. Hamilton formerly served as district game protector for approximately the same territory. During the past summer three new fire towers were added to the one already in use in the district.



## The Empire State Forest Products Association Carries On

Meeting at Albany, N. Y., on October 11, 1929, the Empire State Forest Products Association reviewed a year's cooperation with the New York State Forestry Association in work such as fire-prevention publicity and campaign activities in support of the proposed State constitutional amendment to make an emergency fund available for forest-fire fighting. As its contribution to the observance of conservation week in the spring of 1929 the association prepared and distributed a fire-prevention poster presenting in pictures and in statistics the story of how New York's forest fires originate. During the year, also, the association perfected affiliation with the New York Conservation Association, one result being that the latter body now devotes a page of its Conservationist to the interests of the forest products association.

In looking ahead to the new year's work, Secretary A. B. Recknagel expressed the feeling that the Empire State Forest Products Association has an opportunity to be of particular service to secondary wood-using industries at present not adequately represented in any association, either of manufacturers, wholesalers, or retailers, and stated his purpose to enlist such industries as associate members. For 1930 the association's budget again provides for prize awards to 4-H forestry club members. These are to total \$35.

Elections for 1930 resulted in the continuance of the existing board of directors, headed by George N. Ostrander, and of the following officers: President, George W. Sisson, jr.; vice president, John N. Carlisle; secretary, A. B. Recknagel; and treasurer, W. Clyde Sykes.

## Management Plan Followed by Pennsylvania Boy Scouts

When Boy Scouts of Scranton, Pa., are in camp they cut their firewood according to a forest-management plan drawn up for them by Herbert M. Nicholas, district forester of the Lackawanna forest district of Pennsylvania. The scouts' camp ground includes 441 acres of land on Goose Pond, in southern Wayne County, that is part of an auxiliary State game refuge. The management plan is designed to bring about a sustained yield of timber on the tract, to encourage the growth of the more desirable tree species, and to develop a favorable habitat for Boy Scouts, fish, and game. The recreational purpose saves the lives of many gray birches that ornament the margin of the lake; in general the scheme is to exclude the aspen-gray birch type in favor of the hemlock-northern white pine and beech-birch-maple types.

A 20 per cent strip survey of the area showed that the average acre had a timber stand of 1,953 cubic feet and an annual production of 73.35 cubic feet. For the present Mr. Nicholas has set the annual cut for the area

at 5,000 cubic feet. For some years to come the cut will be mostly of inferior species and thus will be valuable only as fuel wood. All tops of cut trees are to be lopped and scattered to reduce fire hazard, and old roads and trails are to be kept open and in good condition. Two hundred thousand trees have been planted in open fields, and Norway spruce and Norway pine transplants are being grown for planting on areas from which pure stands of gray birch and aspen are to be cut. The scouts are doing the greater part of the cutting and planting, under the supervision of their camp forestry instructor. For further practice in the handling of the ax they are to prune dead side limbs from favored trees.

## Record Tree Distribution in Ohio

The Ohio Forestry Department shipped 3,251,345 trees from the State forest nurseries in the spring of 1929, breaking its previous record by a quarter million. Of this total 1,512,981 were distributed to 577 farmers, 835,625 to 15 cities, and 175,100 to 14 mining companies, and 636,109 were planted on State parks and State forests.

According to the department's plans it will take only a few more years to complete the reforestation of non-wooded areas on the 32,354 acres of land now contained in Ohio State forests.

## Harvest From Vermont State Forests

Forest products harvested last winter from the Vermont State forests included 403,806 board feet of timber and 103 cords of wood. The State forest service reports the cutting of 266,435 board feet of spruce, fir, and hardwoods on the Groton State Forest, Peacham, 124,571 board feet of spruce and fir on the L. R. Jones State Forest, Plainfield, and 12,800 board feet of white birch on the Proctor Piper State Forest, Proctorsville.

## Big Longleaf Seed Crop in Alabama

Longleaf pines bore a large crop of seed in Alabama in 1929, the State commission of forestry reports. Even on young trees cones have been especially abundant; in Monroe County more than 2 bushels of cones, containing some 9,000 seeds, were collected from one small tree 9 inches in diameter at breast height. The State forester planned to have 1,200 bushels of longleaf cones sent to the State forest nursery, where the seed extracted from them would be used in producing planting stock for distribution in the fall of 1930. At the end of October 627 bushels of cones had been sent to the nursery.



The Michigan Conservation Commission recently authorized purchase of an additional 476 acres in the Hardwood State Forest and of an additional 1,575 acres in the Au Sable State Forest.



# Education and Extension

## Forestry Chair Established at University of Arkansas

The University of Arkansas has established a professorship of forestry and has filled the new position by appointing R. P. Holdsworth. Mr. Holdsworth is a member of the 1928 class of the Yale School of Forestry who spent the past year in Sweden as a Scandinavian-American scholar. For some years the university has offered a course in the principles of forestry, under Professor Cooper. Professor Holdsworth is instructing upperclassmen in fundamentals of silviculture, and in the latter part of the school year will direct them in practical silvicultural work, including seeding and planting. Later it is proposed to make a course in general forestry available to underclassmen. A course for teachers in the agricultural high schools of the State will perhaps be offered during the summer term. In due time Professor Holdsworth hopes to undertake a program of research, including studies of the many important hardwood types found in Arkansas. In developing its forestry work the university will give special attention to farm forest problems, as might be expected in a State where farmers own nearly 8,000,000 acres of woodland.

## Arkansas Polytechnic College Allots Land for National Forest Nursery

The Arkansas Polytechnic College, in Russellville, Ark., has given the United States Forest Service the privilege of establishing a forest nursery on an acre of the college farm. The nursery will be a convenient source of supply of stock for planting on the Ozark National Forest. This cooperation was readily offered by the president and board of the college when it became known that forest officers were having difficulty in finding a site suitable for a nursery on the forest itself.

## Forestry in West Virginia Vocational Training

Forestry made its West Virginia debut as a feature of high-school vocational training in agriculture in the spring of 1929, writes Extension Forester Thomas W. Skuce. Boys of the Wadestown, Monongalia County, High School prepared nursery beds and lined out 2,000 Norway and Scotch pine seedlings obtained through Mr. Skuce. Shade frames for use in the nursery were constructed by the boys in the school's manual-training shop. After two years in the transplant rows the trees will be planted in old fields near the school.

## Gift to College of Forestry, University of Washington

The College of Forestry, University of Washington, has received a gift of \$50,000 from Mrs. Agnes H. Anderson. Most of the income from the fund is to be used for graduate research fellowships; the remainder will be available for loans. Mrs. Anderson, whose father and husband were both connected with the lumber industry in the Northwest, has long been interested in the forestry work of the university. In 1924 she gave \$250,000 to build and equip Anderson Hall, the university's second forestry building, as a memorial to her husband, Alfred H. Anderson.

## Cornell Puts Forestry on the Air

Forestry is going on the air about once a week this winter from the Cornell University Radio Station, WEAI. In the months of September-December, inclusive, seven members of the Cornell forestry faculty were scheduled to give 15 noontime radio talks. The interest and variety of the fare thus laid before the radio audience is suggested by the program of talks, as follows:

### SEPTEMBER

The Adirondack Tour.....	J. A. Cope.
4-H Forestry Program, New York State.....	J. E. Davis.

### OCTOBER

Forest Fires and Forest Hunters....	R. S. Hosmer.
Home-Grown Heat.....	J. A. Cope.
Amendment No. 4.....	R. S. Hosmer.

### NOVEMBER

Measuring the Wood Lot Crop.....	J. Bentley, jr.
4-H Forestry Field Days.....	J. E. Davis.
Cornell Wood Lots.....	S. N. Spring.
Cornell's 2,000-Acre Forest.....	J. N. Spaeth.
Hardwoods versus Softwoods: Timber Growing in the North and South.....	F. I. Righter.
Crop Trees of New York State.....	J. A. Cope.

### DECEMBER

Working a 4-H Wood Lot.....	J. E. Davis.
How Cutting has Improved the Cornell Wood Lots.....	S. N. Spring.
Christmas Trees.....	R. S. Hosmer.
Marketing Forest Products.....	J. Bentley, jr.



Cornell University has enrolled 95 undergraduate and 5 graduate students in its professional forestry course this term.



## 4-H Club Boys Join in Adirondack Forestry Tour

Five New York State boys participated in the Adirondack forestry tour arranged by the New York Conservation Department and farm bureaus in September, 1929, joining with 75 men in a 4-day field study of private and State reforestation projects. As in 1928, the Empire State Forest Products Association paid the expenses of the tour for the boy who won first place in second-year 4-H forestry club work. The four other boys were sent by fish and game clubs of Tompkins and Orange Counties in recognition of excellence in first-year forestry club work.

In the four years since 4-H forestry club work was begun in New York enrollment in the clubs has grown to more than 1,000. In 1929 not only have new installations of club members been busy with the first-year work in forest planting and the second-year work in "forest appreciation" (which includes making a collection of leaves, twigs, and fruit of 15 local trees), but a number of third-year workers have undertaken projects in woodland improvement. The complete plan of work developed for the clubs includes a fourth year, in log scaling and timber estimating.

Since August 1, 1929, junior forestry extension activities in New York have been directed by J. E. Davis, who was formerly extension forester for Chautauqua County and is now assistant extension forester for the State.

## Jefferson Forest Research Fund

A fund to be used for forest research has been established by an anonymous donor as a memorial to Thomas Jefferson. Alfred Akerman, professor of forestry at the University of Virginia, is to direct the research thus provided for. The donor has suggested that Georgia be made the field of research for the present, and as two subjects of inquiry has suggested (1) the effect of multiple taxation on cutting of immature timber crops and (2) the trend of State and Federal forestal activities in their relation to the Jeffersonian principles of a large measure of freedom for the individual, local self-government, and limited Federal Government. Professor Akerman invites suggestions as to subjects to be chosen for inquiry, methods to be used in making inquiries, and the publication of findings.

# Forest Service Notes

## Budget Bureau Recommends \$2,419,000 Increases in Forest Service Appropriations

Funds available for protecting the national forests from fire will be larger by \$2,019,500 in the fiscal year 1931 than in the current year, if Congress follows the advice of the Bureau of the Budget. The bureau is recommending an increase of \$188,500 in the appropriation to the Forest Service for prevention of forest fires, an increase of \$331,000 for protection improvements on the national forests (including \$25,000 specifically allocated to the national forests in southern California), and an increase of \$1,500,000 for protection roads and trails. Further increases recommended for national-forest protection are \$25,000 for combating injurious insects and an equal amount for blister-rust control.

Research funds of the Forest Service will be increased by \$238,000 if the Budget Bureau's recommendations are accepted. The proposed increases included in this amount are \$60,000 for forest-management research, \$18,000 for range investigations, \$50,000 for forest products investigations, \$85,000 for a survey of forest resources and requirements, and \$25,000 for studies in forest economics.

For Federal cooperation with the States in forest fire protection an increase of \$300,000 is recommended, and for cooperative distribution of planting stock one of \$10,000.

An increase of \$15,000 is recommended for planting on the national forests, and one of the same amount for range improvements.

The sum of all recommended increases to the Forest Service is \$2,419,450.

## National Forest Reservation Commission Approves 10-Year Program

Meeting on November 2, the National Forest Reservation Commission approved Federal acquisition of 85,195 acres of land for national-forest purposes. This purchase program covers 11 areas located in the three Lake States and in five Eastern States. The largest areas approved for purchase are located within the Catahoula unit in Louisiana, the Mackinac unit in Michigan, and the Moquah unit in Wisconsin. The average price of the land involved is \$2.69 per acre and the total obligation is \$229,406.82.

At this meeting the commission had before it the matter of proposing to Congress a program and policy for the purchase of lands for national forests in the 10-year period following June 30, 1931, when the Woodruff-McNary Act expires. It agreed to transmit to Congress a program for the purchase of 9,400,000 acres of land for national-forest purposes, and to recommend that Congress adopt a policy of appropriating \$5,000,000 per year for such purchases for the 10-year period beginning July 1, 1931. This program would apply only to lands lying east of the ninety-fifth meridian.



## Heptane from California Pine Trees

By C. L. HILL, United States Forest Service

Two kinds of pine trees, both confined largely or entirely to California, have prospects of a step-up in the economic scale because of a hitherto unexploited product of their resin. The product is heptane. One of the trees is the valuable timber species Jeffrey pine, or apple pine as the mountain people call it because of the odor of apple or pineapple that is usually emitted by its bark. This tree is found in the higher mountains almost throughout the length of California. The second is the Digger pine, which in the past has figured as a species of little value because its principal use was for fuel wood. The straggling form and thin gray foliage of this tree are a familiar sight along the foothills and lower levels of both the Sierras and the Coast Range. Development of a market for its resin would be welcome news to ranchers in the foothill regions of California.

The resin of these two trees was early discovered to have curative value as an application for cuts and wounds. During the Civil War agents of the Union Armies, which were cut off from southern supplies of naval stores, reached far-away California in the search for such products. They tapped Jeffrey pine and distilled its resin for its healing principle, which they called abietene. Throughout the war healing salves for man and beast were made on the basis of abietene. Since then, what with the rapid development of synthetic and more highly derivative drugs, abietene has faded into the background together with the herb and root "simples" of our grandmothers' medicine chests.

Some 20 years after the Civil War ended, chemists at the University of California discovered that the liquid obtained by distilling the resin of the Jeffrey and Digger pines was in reality a hydrocarbon which the chemists call normal heptane. The publication of this fact caused a veritable uproar in the chemical world; for this heptane, a hydrocarbon commonly found in petroleum, is of a quite different nature from the terpenes which form turpentine and which were supposed to be produced by distilling the resin of any well-regulated pine tree. In fact, no other growing plant of any kind had till then been found to yield a direct or primary product of such nature. Other chemists refused to believe the findings of the California men. One German chemist derisively suggested that the California chemists had washed their glassware with some petroleum product and had failed to clean off the cleaner. The battle waged for many years before the findings of the California chemists were generally accepted among the chemical profession.

Even then the production of heptane from pine remained only a chemical curiosity. To be sure, heptane would form a valuable chemical reagent for laboratory use, especially in schools and colleges, being suited bet-

ter than almost any other for the illustration to students of many important reactions. And heptane produced from these pine trees has a great advantage over that obtained from petroleum in the ease and cheapness of its recovery. The initial distillation of oleoresin from these pines produces normal heptane about 96 per cent pure; and the substances composing the remaining 4 per cent of the distilled product have boiling points so far from that of heptane that complete rectification of the latter is comparatively easy. In petroleum, on the other hand, heptane is mixed with many other hydrocarbons having boiling points so near its own that isolation of the heptane is very difficult. Thus heptane can be produced from these pine trees at a very much lower cost than from petroleum. Even so, it has seemed that an established industrial use, such as would sustain a steady producing operation, would have to be found before the general and laboratory uses of heptane could be developed.

Such an industrial use now appears to be a possibility. In connection with octane, the hydrocarbon next to it in the same chemical series, heptane can be used for the laboratory measurement of the knock of different gasolines, and therefore of the dosage of tetra-ethyl-lead that is necessary to neutralize that knock. Experiments are now in progress to perfect this method of measuring gasoline knock.

Experimental work on methods of tapping Jeffrey and Digger pines has recently been carried out by the California Forest Experiment Station. The approved method is similar to that used in the turpentine woods of the Southern States. The chipping must be done with considerable regularity; in general, however, ranchmen chipping their Digger pines could make this work a means of utilizing spare time.

## Breakage in Selective Cuttings in Upper Michigan

A count recently made by the Lake States Forest Experiment Station of trees broken as a result of selective cutting operations in the Upper Peninsula of Michigan showed that the cutting, ranging from light to heavy, resulted in breakage of only 2.1 per cent of the number of trees above 2½ inches in diameter in the original stand. The operations covered 46 acres of forest at the station's northern hardwoods field station. On one 8-acre plot a heavy selective cutting resulted in the breaking of only 28 trees, of which 22 were less than 8 inches in diameter. On the other hand, in very heavy cuttings in which 92 per cent of the total volume was removed the breakage amounted to 26 per cent of the total number of trees in the original stand. The figures given are for trees broken so completely that they had to be cut; no count was made of other trees damaged by the breaking of tops or branches or the scarring of boles.



## A Foolproof Method of Planting Longleaf Pine Seedlings

By PHILIP C. WAKELEY, United States Forest Service

● Solution of a difficult problem confronting all planters of longleaf pine has contributed to the success of the Great Southern Lumber Co., Bogalusa, La., in obtaining remarkably high survival in plantations of this species. As was reported in the *Forest Worker* for July, 1929, on some areas planted by this company in 1928-29 longleaf pine survival was as high as 98 per cent.

Longleaf pine seedlings are usually ready for planting when 10 or 12 months old. At this age they are practically stemless. When the stemless seedlings are set out, whether they are planted in the dibble hole in a cleared spot or plowed furrow or are planted with a mattock, it is vitally important to set them half an inch higher in the ground than they grew in the nursery. If this is not done the surface soil "sils in" upon the buds, killing many of the trees within the first year or two after planting and seriously delaying the growth of many more. The necessary "setting up" of the seedlings has been attained with relative ease by experienced workers putting in experimental or demonstration plantations. On large commercial

operations, however, where speed is at a premium and planters are sometimes insufficiently skilled, many trees have been set too high or too low in the ground, and accordingly have died.

Red Bateman, head ranger of the Great Southern Lumber Co., found that in the commercial operations the trouble lay in the way in which the planter grasped the seedling. In taking the seedling out of the planting bucket and putting it into the dibble hole the workman picked it up by the needles and set it at a depth gauged only by eye. Bateman's correction of the trouble was simplicity itself. He required his men to pick up the seedling between fore and middle finger, with the backs of the fingers downward and with one finger on each side of the taproot just under the root collar. The thumb and last two fingers held the needles, which lay along the wrist and lower forearm. When the planter inserted the root in the dibble hole the backs of his fore and middle fingers rested on the ground, and instead of the depth of setting being gauged by eye the root collar was automatically kept above the surface by a distance equal to the thickness of the fingers. In this way vastly more uniform and successful planting was done with absolutely no loss in speed.

One of the advantages of this improved method lies in the ease with which crew foremen can enforce its use.

## General Forest News

### The Brown Pine Scale in Nebraska

By F. R. JOHNSON, United States Forest Service

During the past year those responsible for forest protection in Nebraska have come to realize that coniferous plantations in the State are seriously threatened by *Toumevella pini*, the Brown pine scale. The *Toumevella pini* is a soft-shelled scale, globular in shape and black and reddish in color. It works on the newer shoots. The attacked trees take on a characteristic sooty appearance. Unless controlled the scale quickly increases to such a degree that the infested trees die. This insect was first reported to the Bureau of Entomology from Nebraska in 1916, when it was found on a windbreak planting on the ranch of F. G. Beckhoff in Thomas County, about 15 miles northwest of the Nebraska National Forest plantations. In this case the infested trees were sprayed with oil by the Forest Service; the oil spray was found ineffective, and later the trees were cut out. In 1923 an infestation was reported in Holt County, on a large jack-pine windbreak on the ranch of R. O. Clifford. At this place the infestation was so severe that many trees were killed. Later the owner partially controlled the pest by cutting out the infested trees and branches. In the spring of 1928 an infesta-

tion of several acres was discovered in a jack-pine plantation on the Nebraska National Forest. Here the infested trees, which were of considerable size, were cut out and the branches burned. A smaller infestation in the Nebraska Forest plantations was discovered and controlled in the fall of 1928.

In the spring of 1929 a survey made by the State authorities in southern Holt County, which contains more coniferous plantations than any other portion of the State, showed that 12 wood lots out of the 35 examined were infested. Four infestations were discovered, also, in Thomas County, within 10 or 15 miles of the extensive Nebraska Forest plantations. A conference was held by Governor Weaver, State Secretary of Agriculture McLaughlin, State Nursery Inspector Gates, Extension Forester Watkins, and F. R. Johnson, of the United States Forest Service. The governor was in favor of going ahead with control work. The State department of agriculture has police authority to require landowners to clean up insect infestations, but because so little is known about the control of this scale it seemed desirable for the department to take the lead in trying out control methods. Accordingly the department purchased a power sprayer, and borrowed a truck from the forest, fish, and game commission. The California Spray Chemical



Co. donated 130 gallons of volck. The nursery inspector and the extension forester had charge of the spraying. A number of insecticides were used with results that will be checked later. Apparently a 2 per cent solution of volck controls the scale satisfactorily. It appears now that the success of the spraying depends upon getting the young shortly after they hatch and before they attach themselves permanently to the limbs of the trees. It was decided to carry out further experimental spraying in the fall when the trees and the scale were dormant. Within another year it should be possible to determine the proper season for spraying and the best spray to use.

Two distinct centers of infestation have been discovered. The larger is in the southern part of Holt County, about 80 or 90 miles east of the Nebraska Forest plantations. A smaller infestation is located in Thomas County, 10 to 15 miles from the Nebraska Forest plantations. Evidently, infestation with this scale in Nebraska has for the most part originated in certain plantations established with trees shipped in from Minnesota. In the opinion of the State men who have studied the situation the scale has been spread from one or two infested places by birds, particularly by crows. Crows have established many rookeries in the older coniferous plantations throughout central Nebraska. For several years it has been noticed that the number of crows in the Nebraska Forest plantations is increasing; so that if the crow is an agent in the spread of the scale the presence of the insect in these private plantations greatly endangers the success of the Nebraska Forest project. Realizing that if the scale spreads widely over Nebraska it will cause a severe setback to tree planting in the State, the Nebraska extension forester has made control of the insect one of his major projects. The supervisor of the Nebraska National Forest is keeping a close watch for evidence of the insect on plantations within the forest.

So far the scale has been found mostly on jack pine, but it has also been found on Scotch pine.

## Chestnut Trees Available for Tannin Extraction Many Years After Death

Chestnut trees 20 to 30 years dead show no appreciable diminution of tannin content, according to the results of a recent study by pathologists of the Bureau of Plant Industry. Cooperators in this study included 16 chemists, most of whom represented companies manufacturing chestnut-wood extract. Specimens of wood of representative live and dead chestnut trees averaging about 12 inches in diameter were collected from five localities in the southern Appalachians. Because of the wide variation even among similar trees from the same plot, composite samples were made from 5 trees each in the earlier work and later from 10 trees each. Analyses were made according to the official method of the American Leather Chemists Association.

Because it was desired to test trees that had been dead for a considerable number of years, blight-killed chestnuts could not be used in the study. The tests were made on trees that had been killed by girdling or by fire. In reporting the findings, however, Pathologists R. M. Nelson and G. F. Gravatt apply them directly to the great quantities of chestnut timber that have been killed by blight in this country within the past few years. Previous investigations showed that the action of the chestnut-blight fungus, which does not decay the wood appreciably, does not lower the tannin content of trees attacked by the blight. Tests of decayed heartwood and sapwood made in connection with the present study indicated, also, that the action of decay-producing fungi reduces tannin content to a slight degree only.

Analyses made in the course of this study showed that in live chestnut trees tannin constitutes between 10 and 12 per cent of the bark, between 7 and 11 per cent of the heartwood, and between 3 and 4 per cent of the sapwood. In both living and dead trees the tannin content was very great in the roots and was slightly greater at heights of 3½ feet and 44 feet than at 25 feet.

No marked correlation was found between specific gravity and tannin content, whether in green, sound, dead, or decayed chestnut wood.

## Virginia Farmer Buys Woodland With Its Own Timber

By GORDON FURR

On a recent visit to a small farm in Fairfax County, Va., as I approached the house I saw cords of poplar, gum, pine, and white oak on the road, as well as felled trees in the woods ready to be cut into cord lengths. This surprised me, for last year the owner had given me to understand that he did not intend to sell any more timber off his place; in 1921-22 he had cleared \$1,500 by selling timber off his 47 acres. (Forest Worker, May, 1928.) The reason, I found, was that he wanted to make timber pay for an addition to the farm—the tract of woodland from which he was getting the timber. This tract of woodland, 97½ acres, he had bought for \$3,000.

Since November, 1928, this farmer has sold 100 cords of poplar and gum to a pulp and paper mill at \$9 per cord, placed on the road one-half mile from the woods. Cutting and hauling to the road cost \$4, leaving a profit of \$5 per cord. The pine and oak, 56 cords, he sold in Alexandria, Va., for firewood at \$13 a cord. The firewood cost about \$3.50 per cord to cut and place on the road. In addition he has sold 200 locust posts to the county of Fairfax at \$0.50 per post. They were cut for \$0.20 apiece, giving him a profit of \$0.30 per post. He has an order for 500 more if he can find time to cut them. I told him that he was not charging enough for his posts, as such posts were bringing \$0.75 each in Middleburg, Va., and vicinity. He only laughed and said, "I guess I should help the county a little."



The profit from the timber already sold amounts to about a third of the purchase price of the tract. With a good deal of time still left before his 3-year note for the purchase matures, it looks as if the farmer would succeed in what he set out to do, to make his new land pay for itself.

## Lumber Requirements in Western and Southern States Greatly Changed Since 1910

In a period of approximately 18 years ending with 1928 industrial wood requirements increased by 107 per cent in the Inland Empire States (Idaho and Montana) and by 34 per cent in the Southern Rocky Mountain States (Colorado and New Mexico), according to reports received by the United States Forest Service from wood-using industries in those States. In the Prairie States (Iowa, Kansas, Nebraska, and the Dakotas) the corresponding regional increase was only 1 per cent. These comparisons are based on early returns in a survey of the quantities, kinds, and forms of wood used as raw material in 1928 by industries in the United States, which has been completed by the Forest Service with the cooperation of the Bureau of the Census. The totals reported for the States in these three groups for 1928 and totals reported for the same States in earlier surveys of similar character are as follows:

### Lumber Requirements of Wood-Using Industries

Requirements (thousand board feet)			Increase or decrease (per cent)
	In 1910	In 1928	
<b>Inland Empire:</b>			
Idaho.....	132,739	297,087	+124
Montana.....	58,719	100,011	+70
Total.....	191,458	397,098	+107
	In 1912	In 1928	
<b>Southern Rocky Mountain States:</b>			
Arizona.....	35,288	33,284	-6
Colorado.....	36,961	64,918	+76
New Mexico.....	36,946	59,291	+60
Utah.....	14,875	9,884	-34
Wyoming.....	2,954	2,477	-16
Total.....	127,024	169,854	+34
	In 1911	In 1928	
<b>Prairie States:</b>			
Iowa.....	262,597	220,388	-16
Kansas.....	61,107	62,154	+2
Nebraska.....	27,970	46,881	+68
North Dakota.....	1,086	3,286	+202
South Dakota.....	6,059	21,508	+255
Total.....	358,719	354,217	-1

In Idaho and Montana the principal wood-using industries are the manufacture of planing-mill products and sash, doors, and blinds, and general millwork. The regional increase of 107 per cent is due principally to development of the sash, door, and blind industry in both States. In the Southern Rocky Mountain States substantial increases were shown in the quantities of lumber required for construction and repair of railroad cars in Colorado and for the manufacture of boxes and crates in Colorado and New Mexico. The increases in these two States more than offset the decreases registered in Arizona, Utah, and Wyoming. In the Prairie States, Nebraska and South Dakota showed substantial increases, due to increase in the quantity of lumber consumed in car construction and repair, the manufacture of boxes and crates, and, in South Dakota, the growth of the sash, door, and blind industry. These increases, however, are more than offset by the net decrease in Iowa, which has apparently lost the greater part of its horse-drawn vehicles industry and of a woodenware and novelty manufacturing industry that in 1911 required 20,000,000 feet of lumber.

## Forest Conservationists Petition the President

On October 30 some 50 men representing 22 national and regional organizations interested in forest conservation called on President Hoover and petitioned his support for a balanced program of Federal forestry activities and for more adequate protection of Government-owned forests from fire. The group had gathered in Washington, D. C., at the invitation of the American Forestry Association. George D. Pratt, president of that organization, voiced an appeal for the granting for 1931 of the Federal appropriation of \$3,000,000 for the acquisition of forest lands authorized by the Woodruff-McNary Act. This act authorized appropriations for the acquisition of land for national forest purposes in the amounts of \$2,000,000 for the fiscal year 1929, \$3,000,000 for the fiscal year 1930, and \$3,000,000 for the fiscal year 1931; but for 1930 only \$2,000,000 was actually appropriated by Congress for such acquisition. Robert P. Bass, former Governor of New Hampshire, told the President that his leadership was needed in the formulation and execution of a national policy of forest development and conservation giving reasonable assurance of meeting the future economic and social needs of the country. "As the first step to that end," he said, "we petition for larger appropriations under existing congressional authorization for forest fire protection, reforestation, and tree planting, the purchase of forest land by the Federal Government, and research." John W. Blodgett, of Grand Rapids, Mich., representing the lumber industry, pointed out the need of industry for forest research and protection on an adequate scale.



Secretary of Agriculture Hyde spoke in advocacy of the reforestation of marginal and submarginal lands. R. Y. Stuart, Chief of the Forest Service, outlined a more far-reaching forestry program involving Federal cooperation with forest owners and industries in efforts to abolish destructive forest exploitation and expand forest research; Government assistance in strengthening and stabilizing the forest industries, and amplified

Federal forestry assistance to farmers and other small landowners; a study of Government regulation of forest exploitation; increased fire protection for forest lands; great extension of Federal and State forest ownership; and the bringing about of more complete productivity of public forests, especially through better protection, more intensive management, and an adequate program of planting.

## Foreign Notes

### Canadian Timber Supply

In its report to the Third British Empire Forestry Conference, in 1928, the Canadian Forest Service estimated the forest area of Canada at 1,151,454 square miles, or 32.5 per cent of the Dominion's total land area. Of this total 311,234 square miles is occupied by accessible merchantable timber and 554,646 square miles by accessible young growth; the timber on the remaining 285,574 square miles is at present unprofitable or inaccessible.

Such data as are available to the service indicate that the coniferous timber of merchantable size includes about 382,677,000,000 board feet of saw material and about 799,321,000 cords of small material, and that the broad-leaved timber of merchantable size contains 41,960,000,000 board feet of saw material and 322,672,000 cords of small material.

It is believed that 77,038,000,000 board feet of saw timber is contained in the Eastern Provinces, 26,822,000,000 board feet in the Prairie Provinces, and 320,777,000,000 board feet in British Columbia.

Merchantable stands of spruce are estimated to contain 98,174,000,000 board feet of saw timber, those of Douglas fir 68,886,000,000 board feet, and those of white pine 15,183,000,000 board feet. The merchantable saw timber of broad-leaved species is estimated to include 15,981,000,000 board feet of poplar, 9,817,000,000 board feet of yellow birch, and 5,818,000,000 board feet of maple.

More than 90 per cent of the total forest area in Canada is owned by the Dominion and the Provinces. The Dominion and provincial governments spend some \$7,000,000 a year in administering, protecting, and developing forest resources. They receive as forest revenue about \$17,000,000 annually, exclusive of the revenue from fish and game.



In preparation for making an inventory of Ontario forest resources the forestry department of the Province this fall had three men sketching forest types from airplanes. The plan was to use the aerial survey as a method of "cutting out" large areas that are practically without forest growth.

### Government Forestry Progress in Great Britain

The British Forestry Commission's net acquisition of plantable land amounted to 31,075 acres in the year ending September 30, 1928, according to the commission's ninth annual report. With this increase the commission's plantable lands totaled 275,913 acres, and only 57,287 acres remained to be acquired under the current program. During the year 21,496 acres of State forest land was planted with conifers. The total area planted by the commission in the 9-year period ending with September, 1928, was 116,676 acres. Forest worker's holdings formed during the year numbered 133, making the total 490, and 282 such holdings were in process of formation at the close of the year.

### Danish Christmas Trees

In Denmark the Christmas-tree industry flourishes under especially favorable conditions—the demand is large, the location of most of the forests permits cheap and easy transportation of the trees by water to Copenhagen, the great seaport population center, and great quantities of trees are available as thinnings because of the custom of thickly underplanting spruce. In many of the forests the trees are set out in rows about 6 feet apart, 2 feet or less apart in the row. Because of shade the trees develop slowly; but thinnings and cuttings in the overwood, stimulating the nitrification of humus, enable them to develop dense foliage and good growth. Douglas fir brings the best prices in the Christmas-tree market, because of the beautiful symmetry of the young tree and its dense foliage and open branching. Spruce and pine are the next favorites. True fir is seldom raised in Denmark, because of aphids. The present tendency is to use trees smaller than the 8 to 10 foot size hitherto popular.



British timber buyers have contracted with the U. S. S. R. for 750,000 standards of Russian timber to be produced in 1930, according to the Timber Trades Journal (London).



## Personals

Robert M. Ross has resigned as commissioner of forestry, Vermont, to become secretary of the Connecticut Forestry Association. He is succeeded by his assistant, Perry H. Merrill.

G. H. Lentz, forest extension professor and forestry camp director of the New York State College of Forestry, joins the United States Forest Service December 1 as silviculturist at the Southern Forest Experiment Station. He will be assigned to a study of erosion in its bearing on flood control. Mr. Lentz is a member of the 1917 class of the Yale School of Forestry. He became a teacher in the ranger school of the New York State College of Forestry in 1921 and has been a member of the faculty at Syracuse since 1923. While on leave in 1928 he was employed by the State of Louisiana to make a study of the hardwood bottom lands of that State.

Robert S. Maestri has been appointed commissioner of conservation of Louisiana, succeeding V. K. Irion.

Leslie E. Sawyer has accepted appointment as extension forester of Illinois, succeeding C. J. Telford. Mr. Sawyer was graduated from the Michigan State College in 1924 and for the past five years has been teaching forestry in the Georgia State College of Agriculture.

Officers elected for the year 1929-30 by the National Association of State Foresters are: President, Charles P. Wilber, New Jersey; vice president, Page S. Bunker, Alabama; secretary-treasurer, E. O. Siecke, Texas. New members of the executive committee are J. S. Holmes, North Carolina, and Rutledge Parker, Montana.

James R. Garfield, formerly Secretary of the Interior and now engaged in private law practice in Cleveland, Ohio, has been named by President Hoover as head of the commission on conservation and administration of the public domain. Other members of the commission are Elwood Mead, Commissioner of the Reclamation Bureau; George Horace Lorimer, editor of the Saturday Evening Post; Mary Roberts Rinehart, Washington, D. C.; R. K. Tiffany, Olympia, Wash.; Rudolph Kuchler, Phoenix, Ariz.; Charles J. Moynihan, Montrose, Colo.; George W. Malone, State engineer, Nevada; William Peterson, Logan, Utah; I. H. Nash, Boise, Idaho; Perry Jenkins, Big Piney, Wyo.; I. M. Brandjord, Helena, Mont.; E. C. van Petten, Ontario, Oreg.; Wallace Townsend, Little Rock, Ark.; H. O. Bursum, Socorro, N. Mex.; James P. Goodrich, former Governor of Indiana; Gardner Cowles, Des Moines, Iowa; Huntley Spaulding, Rochester, N. H.; and W. B. Greeley, Seattle, Wash. Secretaries Wilbur of the Department of the Interior and Hyde of the Department of Agriculture are ex officio members of the commission.

Lee A. Strong, assistant director of agriculture of the State of California, has been appointed Chief of the Plant Quarantine and Control Administration, United States Department of Agriculture. Mr. Strong was formerly connected with the department as a specialist in plant quarantine work. In his new position he will serve ex officio as chairman of the advisory Federal Plant Quarantine Board. C. L. Marlatt, Chief of the Bureau of Entomology, retires as Chief of the Plant Quarantine and Control Administration at his own request, in accordance with a plan authorized some two years ago.

S. Bryan Jennings, of Jacksonville, Fla., who has served as president of the Florida State Board of Forestry since it was created two years ago, has been reappointed to the board.

C. Edward Behre has been appointed director of the Northeastern Forest Experiment Station, succeeding John S. Boyce, now professor of forest pathology at Yale University. Mr. Behre has had some four years' experience in the work of the station, having first joined the staff in 1923 as associate silviculturist. Previous to that time he taught forestry in the University of Idaho for five years. He is a specialist in forest mensuration, in which field he is the author of numerous publications, and has done important work in developing methods for statistical analysis of measurements of tree form. A member of the Yale forestry class of 1917, he is secretary-treasurer of the Yale Forest School Alumni Association and editor and manager of the Yale Forest School News.

Lewis C. Everard has resigned as editor and chief of educational cooperation, United States Forest Service, to become editor for the American Association of Museums. Mr. Everard first joined the Forest Service in 1915, coming to the position of editor from that of instructor in English at Yale University. He became chief editor of the Department of Agriculture in 1919, later engaged in economic, statistical, and editorial work for the War Finance Corporation, and returned to the Forest Service early in 1925. In his new position Mr. Everard will have charge of the editing, distribution, and sale of all the publications of the association, including the periodical *The Museum News*.

Harold B. Shepard has been appointed to the staff of the Office of Forest Economics, United States Forest Service, to initiate a study of forest insurance for which Congress has made a special appropriation available during the current year. At the outset the study will be concentrated in the Pacific Northwest. Mr. Shepard comes to this work with 10 years' experience as forester for pulp companies and as consulting forester and 4 years' experience in fire-insurance work.



Marshall S. Wright has resigned as assistant engineer in the Washington office of the United States Forest Service, to become western representative of the Aerotopograph Corporation of America. Mr. Wright's connection with the Forest Service dates from 1919, when he was transferred from the General Land Office to take charge of entry survey activities in the Inter-mountain National Forest District. He has been stationed in Washington since 1923, and for the past two years has had direct charge of maps and surveys for the service as a whole. The corporation with which he has accepted employment is a branch of a world organization engaged in making topographic surveys from airplanes, and is headed by C. H. Birds-eye, recently chief topographic engineer of the Geological Survey.

H. M. Sebring has left Florida, where he was district forester, to become assistant State forester of Georgia, succeeding F. B. Merrill.

Ralph W. Hayes, who has taught forestry at the University of Louisiana for the past three years, is now teaching under J. V. Hoffman in the forestry department organized this year by the North Carolina State College. Mr. Hayes, who is a forestry graduate of the Iowa State College, was formerly connected with the forestry staff of the Office of Indian Affairs, and began his work as a teacher at the Colorado State College. DeLanson Lenhart, who was graduated from the Pennsylvania State Forest School in 1927, is at the North Carolina College as a graduate assistant in the forestry department.

John H. Hanley has resigned as junior forester, Central States Forest Experiment Station, to engage in advanced study in the University of Illinois.

P. T. Gillett, a forestry graduate of Cornell University, has been appointed county forester and assistant county agent in Chautauqua County, N. Y., succeeding J. E. Davis.

Louis C. Fleck, chemist, I. B. Lanphier, engineer, and Ervin Kurth, chemist, resigned from the staff of the Forest Products Laboratory on November 1 to accept positions in the industrial field. Doctor Fleck, a University of Wisconsin graduate of 1917 who has been making researches in the chemistry of wood for the laboratory since 1921, will engage in wood-cellulose research for the Kimberly-Clark Co. at Kimberly, Wis. Mr. Lanphier, a Wisconsin graduate in civil engineering who has been attached to the container-testing laboratory since 1921, is entering the package research laboratory of the 4-One Box Machine Makers at Rockaway, N. J. Mr. Kurth, a member of the 1927 class of the University of Wisconsin who has been studying wood extractives, is joining the Du Pont organization and will be assigned to a plant in the East or South.

Members of the Northeastern Forest Research Advisory Council who have been reappointed by the Secretary of Agriculture for 3-year terms are J. W. Toumey, Yale School of Forestry; W. R. Brown, Brown Co., Berlin, N. H.; R. S. Kellogg, secretary, News Print Service Bureau, New York City; and W. L. Slate, jr., director, Connecticut Agricultural Experiment Station.

Alfred E. Smith, former Governor of New York, has accepted membership on the board of trustees of the New York State College of Forestry, succeeding the late Louis Marshall.

Jesse D. Sinclair has been appointed assistant forest ecologist at the Southern Forest Experiment Station. Mr. Sinclair received the B. S. degree from the University of California in 1926 and the M. S. degree from the same institution in 1929.

E. C. Sherrard, acting in-charge of the section of derived products, Forest Products Laboratory, has been elected chairman of the cellulose division of the American Chemical Society, succeeding J. L. Parsons.

## Bibliography

### An American View of Swedish Forestry

By E. N. MUNNS, United States Forest Service

George Sargent Perry's book on forestry in Sweden holds much interest for a recent visitor to Scandinavia and should appeal to all those who are desirous of knowing more about the forest conditions and problems of northwestern Europe. It presents a general view, historical and legal, of local conditions as they have developed through the last few centuries. Types, trees, and silvicultural practices are described in detail. The economics of land use and of forest management are well treated. Utilization, taxation, and regulation are not overlooked.

Professor Perry finds three reasons for the promising progress of Swedish private forestry: "(1) The Gov-

ernment on its extensive areas is practicing the best possible methods and making it pay; (2) careful experimental work lies back of most methods in use, and there is no dearth of funds to support forest research; (3) laws compel landowners to take proper management measures or forfeit both land and crop under certain conditions."

Not only does the author consider the forest as he saw it locally, but here and there he brings in contrasts, drawn "from the viewpoint of an American forester," between the Scandinavian conditions and those of the United States; and his own comment on Swedish practices gives added value to the work. Some of the things he points out are well worth having called sharply to attention, such as that with the modern tendency favoring natural regeneration meth-



ods we are devoting too much educational attention to artificial regeneration; that seed can be taken from colder localities to warmer with far greater success than from warmer to colder; that local species are of greater value than exotics; and that charts are more helpful than tabulations, whether for propaganda or for management purposes.

A number of things are missing from Perry's work. The most important omission, from my point of view, is a full discussion of the various economic timber surveys. No doubt this is due partly to the fact that much of the information on which the book is based was collected in 1923, before the surveys had progressed very far; but the treatment of the subject suggests that the author failed to grasp the full significance attaching to such surveys, especially in a country where continued prosperity seems to depend absolutely upon continuous forest production. We in the United States need, and need badly, data such as are being obtained through these surveys, as a basis for our own forest land policy and for a proper understanding of our forest problems.

It is hoped that the appearance of this book, describing the forestry practices of Sweden, will not increase the tendency already evident in some quarters to accept blindly the teachings of the Swedish school of thought as applicable in the United States. It should be fully recognized that European conditions are different from those in the United States. However, the book should be widely read by foresters, no matter whether these style themselves silviculturists, forest managers, or economists. Particularly should it be read by research men, teachers, and those intending to visit Scandinavia.

(Perry, George Sargent: *Forestry in Sweden and Adjacent Lands from the Viewpoint of an American Forester*. Published by the author, Mont Alto, Pa., 1929.)

## Manuals on Kiln Drying, Air Seasoning, and Gluing Wood

After years of experiment and experience the Forest Products Laboratory is bringing out, with increasing frequency, useful complete manuals for the handling of forest products. Two years ago the results of 20 years' accumulation of information about pulping were brought together in Department of Agriculture Bulletin 1485, *The Suitability of American Woods for Paper Pulp*. In the last two years three manuals that cover in a comprehensive way the seasoning and gluing of wood have been prepared at the laboratory. In addition a tabular statement of the strength of North American woods, the outcome of tests made at the laboratory, has been published.

The most recent of the manuals, *The Gluing of Wood*, by T. R. Truax, Department Bulletin 1500-D, provides information for the improvement of shop practice in plants that glue wood. It describes the properties of glues used in woodworking, gives methods

for testing glues, and discusses fully the preparation of glues for use and the operations involved in gluing wood. It also describes methods of correcting gluing defects and of calculating pressure on joints. Thirteen plates and 18 figures illustrate important points discussed in the text.

The *Air Seasoning of Western Softwood Lumber*, by S. V. Fullaway, H. M. Johnson, and C. L. Hill, Department Bulletin 1425, presents principles and practices intended to aid in reducing the losses from air seasoning in western yards, shorten the average drying time, and lower shipping weights on western softwood lumber. Approximately 35 per cent of the annual cut of the principal western lumber-producing regions, or about 4,500,000,000 feet, worth \$120,000,000, is air seasoned. Competition is keen and improvement in seasoning methods is highly desirable. The bulletin begins with a discussion of the principles of air seasoning, but the major part of the text is given up to suggestions of a concrete and practical nature in regard to the layout of the yard, the handling of the stock, the construction of the piles, and the solution of the particular drying problems of the Douglas fir, Inland Empire, California pine, and redwood regions. The text is illustrated by 8 plates and 10 figures.

The *Kiln Drying Handbook*, Department Bulletin 1136-D, by Rolf Thelen, is a complete manual for the operation of dry kilns for seasoning lumber, with suggestions for the drying of other partly manufactured wood specialties. Drying schedules and seasoning specifications with special schedules for aircraft lumber, bent stock, plywood panels, etc., are included. The bulletin contains 16 plates and 14 figures.

In general the information contained in these manuals is based on experimental work at the Forest Products Laboratory, Madison, Wis., and has been tested in commercial practice. They are at once practical helps to the manufacturer, embodying scientific and commercial experience and test results, and aids to forest conservation in that they all look to the more efficient use of the timber supply of the Nation. Copies of all of them may be obtained, while the supply lasts, from the Office of Information, United States Department of Agriculture, Washington, D. C.

## Recent Books and Pamphlets

American Society of Civil Engineers: Flood control with special reference to the Mississippi River: A symposium. 315 pp. illus., maps, diagrams. (Paper No. 1709.) New York, 1929.

Fehér, D.: Die biologie des waldbodens und ihre physiologische bedeutung im leben des waldes. 64 pp. diagrams. Finska Forstsamfundet, Helsinki, 1929.

Helphenstine, R. K.: Quantity of wood treated and preservatives used in the United States in 1928. 33 pp. tables, diagrams. American Wood Preservers' Association. Chicago, 1929.

Internationaler Kongress Forstlicher Versuchsanstalten: Resümées der angemeldeten vorträge: summaries of the papers submitted. 160 pp. Stockholm, 1929.



- Krache, P.: Die praxis des baumschulbetriebes. 544 pp. illus. P. Parey, Berlin, 1929.
- Kruedener, A. von: Waldtypen: klassifikation und ihre volkswirtschaftliche bedeutung, vol. 1. 122 pp. illus., map. J. Neumann, Neudamm, 1927.
- Krueger, M. E.: Factors affecting the cost of tractor logging in the California pine region. 44 pp. illus., diagrams. (California Agricultural Experiment Station bulletin 474.) Berkeley, 1929.
- Mitchell, J. A.: Forest fire hazard as affected by weather conditions, forest type, and density of cover. 26 pp. diagrams. (Wisconsin Agricultural Experiment Station research bulletin 91.) Madison, 1929.
- Ontario Department of Lands and Forests: Report for the year ending October 31, 1928. 136 pp. Toronto, 1929.
- Pearson, H. B.: Field book of destructive forest insects. 20 pp. illus. Maine Forest Service, Augusta, 1929.
- Quebec Department of Lands and Forests, Forest Protection Service: Report on the protection of the forests during the year 1928. 40 pp. illus., diagrams. Quebec, 1929.
- Recknagel, A. B., and Spring, S. N.: Forestry: a study of its origin, application, and significance in the United States. 255+37 pp. illus., map. A. A. Knopf, New York, 1929.
- Technical Association of the Pulp and Paper Industry: Papers and addresses, 12th series. 388 pp. illus. New York, 1929.
- United States National Committee on Wood Utilization: Survey of nonutilized wood in North Carolina. 62 pp. illus., map. Washington, 1929.
- United States National Forest Reservation Commission: Report for the year ending June 30, 1928. 38 pp. Washington, D. C., 1928.
- Vermont Forest Service: General laws of the State of Vermont relating to forestry, as amended by acts of 1919, 1921, 1923, 1925, 1927, and 1929. 39 pp. (Publication no. 34.) Montpelier, 1929.
- Wyman, L.: Florida naval stores. 42 pp. illus. (Florida Department of Agriculture bulletin no. 25.) Tallahassee, 1929.

## Articles in Periodicals

- Bulletin de la Société Centrale Forestière de Belgique, August, 1929.—La carbonisation et les gazogènes, by F. Goblet d'Alviella, pp. 345-362, illus.
- Canadian Woodlands Review, May, 1929.—Use of aerial camera in mapping, by R. C. Purser, pp. 7-11, illus.; Maintaining pulpwood species on cut-over lands, by M. Westveld, pp. 21-24, illus.
- Empire Forestry Journal, 1929.—Softwood supplies of the British Empire, by F. Story, pp. 28-36; Empire forestry conference, 1928: Summary report, resolutions, and reports of committees, pp. 108-159.
- Journal of Forestry, May, 1929.—The antitrust laws and conservation of national resources, by B. M. Webster, jr., pp. 477-485; Summary of first year's hardwood investigations in Louisiana, by G. H. Lentz, pp. 486-494; Possibilities of economic transportation of northeastern hardwoods, by B. Frank, pp. 507-510; Light requirements and silvicultural practice, by H. L. Shirley, pp. 535-538; Grazing in relation to forestry in New England, pp. 602-608.
- U. S. Department of Commerce Bureau of Standards Journal of Research, September, 1929.—A study of purified wood fibers as a paper-making material, by R. H. Rasch, pp. 469-506, illus.

## Recent Publications of the Forest Service

- Miscellaneous Publication 50: Volume, Yield, and Stand Tables for Second-Growth Southern Pine.
- National Forest Area Tables.
- National Forest Map Folders; Blackfeet, Custer, Klamath, Shasta, National Forests of the Central Appalachians, National Forests of the Southern Appalachians.

# Index for 1928

### Acquisition, land:

for Boy Scout camp, New York.....	Jan., 5
for deer preserve, North Carolina.....	Sept., 2
for municipal forest, Warsaw, N. Y.....	Jan., 1
for national arboretum.....	Jan., 10
for national forest purposes.....	Jan., 9; Mar. 9; May, 13; July, 10, 12
for national park.....	July, 18
for school forest, Texas.....	Mar., 5
for State forest—	
Connecticut.....	Mar., 3
Indiana.....	May, 2
North Carolina.....	July, 6
for State forests—	
and camp sites, New York.....	Jan., 1, 3; Mar., 4; May, 1; Sept., 2
Ireland.....	May, 21
New Jersey.....	May, 2
Pennsylvania.....	May, 1
Vermont.....	Sept., 2
for State park—	
Franconia Notch, N. H.....	July, 1
Michigan.....	Jan., 2
Nebraska.....	Jan., 3

See also Appropriations.

### Africa:

rubber production.....	July, 28
wood specimens from Yale collection.....	Jan., 4

Agricultural Economics, Bureau of, study.....	May, 17
Airplane:	
fire fighting and surveying.....	Sept., 24
patrol of national forests.....	Sept., 11
Alabama:	
county forestry.....	July, 4
inventory of State lands.....	July, 4
new forest industry.....	July, 19
planting stock distribution.....	Mar., 4
State forests, new.....	July, 4
Alaska:	
improved market for hemlock.....	Sept., 11
schools, forestry lessons prepared for.....	July, 9
southeastern, raw humus in.....	Sept., 14
tree seed washed up by sea.....	Nov., 8
Alders protect stream banks.....	Mar., 17
Aldous, A. E., author of article on deferred and rotation grazing.....	July, 17
American Forest Week:	
announcement.....	Jan., 11
celebration in Pasadena, Calif.....	Sept., 6
contests, Oregon.....	Nov., 5
forestry lessons distributed, Alaska.....	July, 9
observance, Nebraska.....	Sept., 6
slogan contest.....	Mar., 5



<b>American Legion:</b>		
purchases land for Connecticut State forest.....	Mar., 3	
recruits fire fighters.....	Sept., 1	
<b>American-Scandinavian Foundation brings foresters to the</b>		
United States.....	July, 9	
Anthony, Alfred, coauthor of "Rubber Production in Africa".....	July, 28	
<b>Appropriation:</b>		
<b>Federal—</b>		
for Clarke-McNary work.....	July, 3	
for national arboretum and botanic garden.....	Jan., 10	
for naval stores studies.....	Sept., 18	
<b>fire protection—</b>		
California.....	Sept., 4	
West Virginia.....	Nov., 3	
for reforestation investigative commission, New York.....	July, 3	
<b>forestry—</b>		
Dallas County, Ala.....	July, 4	
Erle County, N. Y.....	Jan., 3	
Los Angeles County.....	Jan., 1	
Mississippi.....	July, 4	
South Carolina.....	May, 1	
<b>Appropriations:</b>		
county forestry, New York.....	May, 3	
<b>Federal—</b>		
for national forest roads and trails.....	Nov., 8	
forestry.....	May, 13	
municipal, for blister-rust control, New Hampshire.....	May, 2	
Arbor Day, Nebraska.....	Sept., 6	
Arbor Week, New Hampshire.....	May, 7	
<b>Arboretum:</b>		
Arnold.....	Jan., 5; July, 6	
in State park, Nebraska.....	Jan., 3	
in Wales.....	May, 23	
Lehigh University.....	Mar., 7	
national, appropriation for.....	Jan., 10	
University of California.....	Nov., 5	
<b>Arboriculture:</b>		
book on care of ornamentals.....	July, 27	
leaflet on care of shade trees.....	Jan., 21	
method of aerating tree roots.....	May, 17	
<b>Argentina, forestry activity</b>		Nov., 12
<b>Arizona:</b>		
fire lines built with tractors.....	Sept., 9	
logging-equipment fires eliminated from national forests.....	Mar., 10	
longleaf (Apache pine), resistance to fire.....	July, 19	
natural area dedicated.....	July, 13	
porcupine control in.....	Mar., 12	
saw-timber working circle tapped.....	Sept., 11	
study of temperature and moisture preferences of trees.....	May, 11	
<b>Arkansas:</b>		
black-locust farm plantation.....	Mar., 15	
campaign to halt clear cutting.....	Jan., 5	
citizens volunteer to protect national forest.....	May, 19	
fire protection on private lands.....	May, 1	
Forest Protective Association.....	Nov., 4	
"grow sawlogs" campaign.....	Sept., 7	
national forest purchase in.....	Jan., 9	
roadside planting by women's clubs.....	Mar., 7	
<b>Association:</b>		
<b>American Forestry—</b>		
meeting.....	Mar., 14	
southern educational project.....	Sept., 5	
timber scale sticks made available by.....	Mar., 15	
American Tree, forestry primer.....	July, 29	
American Wood Preservers', report.....	Nov., 10	
Arkansas Forest Protective, formed.....	Nov., 4	
Blackfoot Forest Protective, triples area.....	May, 4	
Connecticut Forestry, renamed.....	Mar., 3	
Empire State Forest Products, prize award.....	Nov., 6	
fire protection, France.....	Sept., 24	
local fire-protective, Mississippi.....	Mar., 3	
Massachusetts Forestry, publication.....	Sept., 28	
Massachusetts Forestry, county forestry plan.....	May, 3	
<b>Association—Continued.</b>		
Missouri Forestry, meeting.....	Mar., 14	
National, of State Foresters, meeting.....	Nov., 2	
North Carolina Forestry, recommends legislation.....	Sept., 3	
Northern Hemlock and Hardwood Manufacturers'.....	Jan., 19; Sept., 20	
parent-teachers, school forest established by.....	July, 9	
Potlatch Timber Protective, increases personnel.....	May, 4	
Tucson Natural History, dedication exercises.....	July, 13	
Washington Forest Fire, report by.....	Mar., 17	
Western Pine, trade-marking plan.....	July, 19	
woodlot owners', New Hampshire.....	Nov., 4	
<b>Australia:</b>		
growth of Monterey pine.....	July, 20	
nursery soil problem.....	Mar., 17	
Baker, F. S., forest type study by.....	May, 10	
Balch, R. E.: article on Dying Oaks in Europe.....	Mar., 18	
Baldwin, Henry I., representative of Swedish journal.....	July, 29	
Balsam brush, a market for.....	Nov., 3	
Barnes, Will C.: article on Snakes and Snake Bites.....	May, 18	
Beattie, R. K., letter on Korean forests.....	Sept., 23	
Beatty, D. L., study of radio problems.....	May, 12	
Beech, distribution in Europe.....	Sept., 22	
Beetle, <i>See</i> Insects.		
<b>Belgium:</b>		
extraction of gas from forest materials.....	Nov., 11	
movable nurseries.....	Sept., 21	
Berry Schools, forests of.....	Nov., 6	
Bessey. <i>See</i> Nursery.		
Bibliographies, forestry, available.....	July, 27	
<b>Bibliography:</b>		
on communal forests.....	Sept., 29	
on forestry and botany, Central States region.....	Sept., 29	
sections on.....	Jan., 19; Mar., 21; May, 26; July, 27; Sept., 26; Nov., 16	
Bigtrees, roots injured by tourists' boots.....	Sept., 16	
Bilbray, Claude N., fight for life with fire.....	May, 4	
<b>Biological Survey, Bureau of:</b>		
investigation by.....	July, 5	
porcupine control work.....	Mar., 12	
Tucson office, new headquarters.....	Sept., 15	
Birch, damage to by borer.....	July, 16	
<b>Birds:</b>		
longleaf pine seed taken by.....	May, 8	
valuable in controlling white pine weevil.....	Mar., 13	
Black locust. <i>See</i> Locust.		
Blister rust. <i>See</i> Disease.		
Blodgett, L. D., fire equipment devised by.....	Jan., 7	
Bode, I. T., instructs farmers.....	Mar., 5	
Book covers, fire prevention.....	Sept., 5	
Books. <i>See</i> Bibliography.		
Borer. <i>See</i> Insects.		
<b>Botany:</b>		
book on flowers.....	Nov., 14	
forest, a book on.....	May, 28	
United States Botanic Garden, appropriation for.....	Jan., 10	
<i>See also</i> Dendrology.		
<b>Boy Scouts:</b>		
Georgia, pine plantings by.....	Jan., 13	
Indiana, to start forests.....	May, 7	
Louisiana, forestry in camps.....	Jan., 4	
Maryland, planting by.....	July, 9	
New York, forestry work on camp ground.....	Jan., 5; Sept., 5	
Virginia.....	Jan., 5	
<b>Bradner, M. I.:</b>		
compilation on limits for profitable cutting.....	July, 10	
observations on relation of stump diameter to d. b. h.....	Nov., 9	
<b>British Columbia:</b>		
forest fires.....	Mar., 19	
spread of blister rust.....	Jan., 10	
<b>Brooks, C. E. P.: article on The Influence of Forests on</b>		
Rainfall and Run-Off.....	July, 17; Sept., 20	
Brown, N. C.: camera studies in European forestry.....	Jan., 21	



## Bruce, Donald:

article on Do Understocked Stands Ever Catch Up?	Jan., 8; Sept., 10
article on A Suggestion for the Use of Tables of Basal Areas	May, 17
papers by	May, 29
Brush lands, intermountain, not potential western yellow pine sites	May, 10
Buell, J. H.: article on Windbreaks and Shelter Belts for Maryland (review)	May, 29
Bump, Gardiner, coauthor of Fifty Common Trees of New York	May, 28
Burl, walnut, cut in New Mexico	Sept., 16
California:	
American Forest Week celebration, Pasadena	Sept., 6
Bigtrees injured by boots of tourists	Sept., 16
contest, forestry, for school children	July, 9
fire protection—	
cooperation	Sept., 4
extended	July, 6
fireproofing of roads	May, 4
funds granted for	Sept., 4
veterans organize for	Sept., 1
Four-H camps visited by extension forester	Nov., 5
gives trees to Haiti	Nov., 3
Los Angeles County forestry work	Jan., 1
national forests—	
municipal camps	Nov., 10
seed collection on Lassen	Nov., 7
smoking restricted	July, 14
weather forecasts on the fire line	Nov., 11
park offered to	Sept., 3
pine forests, tree classification for	Jan., 8
pinus, insect enemies of, and their control	July, 27
planting progress	Mar., 4
Santa Cruz County demonstration forest	Mar., 3
University of—	
campus as an arboretum	Nov., 5
forestry division, new quarters	July, 6
offers Ph. D. in forestry	May, 6
value of windbreaks to orchards	Jan., 12
Calvert, E. B., explanation of dry thunderstorm	July, 19
Camp Fire Girls celebrate tree year	Mar., 6
Camp sites:	
leased on State forests, Pennsylvania	May, 4
public, New York	Jan., 3; Mar., 4; Sept., 2
Camps:	
Boy Scout. See Boy Scouts.	
forestry—	
Cornell	May, 6
Syracuse	May, 6
Iowa	May, 6
Purdue	Jan., 5
Utah Agricultural College	Jan., 4
Four-H, California	Nov., 5
municipal, on national forests, California	Nov., 10
Canada:	
carbide lamps for fire fighting	Sept., 24
experiment in budworm control	Jan., 15
fire losses reduced	Nov., 12
planting stock distribution	Mar., 19
shelter belts help the farmer	Nov., 13
snowbreaks, railway	Jan., 15
tank cars maintained by railway	Sept., 24
See also British Columbia, Ontario, Quebec.	
Canadian Forestry Association	May, 22
Carter, E. E.: article on—	
A Good Book on Insect Enemies of California Pines	July, 27
California District Collects Seed	Nov., 7
Cattle. See Range.	
Cedar, southern white, volume tables for	July, 28
Chamber of Commerce:	
East Texas, to promote forestry measures	Sept., 3
United States, commercial forestry conference	Jan., 12
Champion, H. G., investigation into origin of twisted fiber	Jan., 17
Charcoal manufacture, Montana	Jan., 14
Charlton, O. C., author of leaflet on arboriculture	Jan., 21

## Chemicals:

use of, for eradicating Ribes	July, 16
weed growth prevented by	Jan., 2
Chemistry and Soils, Bureau of:	
appropriation for naval stores study	Sept., 18
figures on consumption of naval stores	Nov., 1
studies of naval stores distillation	Mar., 12
Chestnut in Korea	Sept., 23
China, golden larch in	July, 19
Christmas trees:	
importation from Quebec permitted	Sept., 19
regulations as to movement revised	Nov., 9
Cigars and cigarettes, fire-hazard tests with	May, 20
Clarke-McNary law:	
amendments, proposed	Jan., 2; Nov., 2
cooperative work under—	
Louisiana	Mar., 1
Mississippi	Jan., 2
Nebraska	May, 7
Federal administration of, Eastern States	Jan., 2
fire protection work, cost estimates by State foresters	Nov., 2
funds, Federal, allotments to States	July, 3
inspection headquarters	Mar., 2; July, 2
States cooperating under	Mar., 2; May, 1
Clements, Frederic E. and Edith F., authors of Flower Families and Ancestors	Nov., 14
Climate:	
influence on forest type—	
in intermountain brush lands	May, 10
in Southwest	May, 11
Manchurian, endured by American trees	Sept., 22
of seed source, bearing on success of plantations	Sept., 12, 20
of southeastern Alaska, raw humus formed in	Sept., 14
temperatures determine distribution of tree species	Sept., 22
Cline, A. C., coauthor of Pruning White Pine for Profit	Sept., 28
Clubs:	
DeMolay, forest plantation of	Jan., 4; Sept., 8
Four-H—	
California, camps visited by extension forester	Nov., 5
Louisiana, prizes	Sept., 8
Maryland	Jan., 5
New York—	
forestry enrollment	May, 8
planting	Mar., 6
prize awarded	Nov., 6
tree guide prepared for	May, 28
North Dakota	Jan., 4
Pennsylvania, earn money by forestry work	July, 9
Texas, practical forestry work by	Mar., 7
Kiwanis—	
Michigan, underwrite big plantation	Sept., 16
West Virginia, organize forestry committee	May, 4
sportsmen's, New York, planting	Jan., 3
women's—	
Arkansas, roadside planting	Mar., 7
Pennsylvania, urge highway planting	July, 7
Cobb, F. E., coauthor of Tree Planting in the Great Plains Region	Sept., 29
College. See Iowa, Nebraska, New York, North Carolina, Oregon, Pennsylvania, Texas, Utah, Virginia.	
Colorado:	
farm plantings	Sept., 4
range revegetation	Mar., 22
Commercial forestry:	
conference in Wisconsin	May, 20; July, 27
national conference on, recommendations	Jan., 12
See also Industrial forestry.	
Communal forests:	
bibliography	Sept., 2
returns from, France	Jan., 17; Nov., 12
Congress:	
of Entomology, fourth international	Mar., 11
Soil Science, first international, summary of (review)	May, 26
United States. See Appropriation, Appropriations, Legislation.	



<b>Connecticut:</b>		
farmers, forestry advice to.....	Sept., 7	
forestry association renamed.....	Mar., 3	
land for State forest purchased by American Legion.....	Mar. 3	
Quinebaug Park made accessible.....	Nov., 3	
<b>Contest:</b>		
essay—		
American Forest Week, Oregon.....	Nov., 5	
in Nebraska schools.....	Sept., 6	
Pasadena, Calif.....	Sept., 6	
forestry, for school children.....	July, 9	
tree identification, for farmers.....	Sept., 8	
Cope, J. A., coauthor of Fifty Common Trees of New York.....	May, 28	
<b>Cornell University:</b>		
students visit North Carolina.....	May, 6	
tree guide published.....	May, 28	
Corrections.....	May, 5, 8; Sept., 15, 20; Nov., 4	
Corrèze, Department of, France, reforestation.....	Sept., 21	
<b>County forestry:</b>		
Dallas County, Ala.....	July, 4	
Erie County, N. Y.....	Jan., 3; May, 8	
Lewis and Schoharie Counties, N. Y.....	May, 3	
Los Angeles County, Calif.....	Jan., 1	
New Hampshire.....	May, 2, 3	
Oswego County, N. Y.....	May, 8	
Coville, Perkins: article on Black Locust for Idaho.....	Sept., 29	
<b>Craighead, F. C.: article on—</b>		
An English Paper on Bark Beetles.....	Mar., 22	
Some Effects of Fire and Insect Attack on Shortleaf Pine.....	Mar., 11	
Creosote. See Preservation, wood.....	Nov., 10	
Cunningham, R. N., coauthor of Timber Growing in the Western White Pine and Larch-Fir Forests of the Northern Rocky Mountains.....	Jan., 20	
<b>Cutting, timber:</b>		
improvement—		
by Four-H club boys.....	July, 9	
returns from, New York.....	May, 8	
limits for profitable.....	July, 10	
regulated by Government, Ireland.....	May, 21	
See also Logging.		
<b>Cypress:</b>		
bald, planted in Maryland.....	July, 5	
Gethsemane, seedlings from.....	Mar., 17	
growth of, in Louisiana nursery.....	Jan., 2	
timbers sunk in swamp, Maryland.....	July, 2	
<b>Czechoslovakia:</b>		
nun-moth control.....	Jan., 17	
study of fauna of forest litter.....	May, 22	
<b>Damage:</b>		
flood, to young hardwoods.....	May, 14	
forest fire. See Fire.		
to farm crops by deer, Pennsylvania.....	July, 5	
Damages recovered by Government for burned young growth.....	Mar., 10	
Dayton, William A.: article on Range Revegetation in Colorado (review).....	Mar., 22	
<b>Dean, F. W.:</b>		
farm woodland demonstrations.....	Sept., 6	
planting work.....	July, 9	
<b>Deer. See Game.</b>		
Deering, W. B., pruning method.....	May, 19	
De Gendre, P., report on mysterious tree deaths.....	July, 23	
<b>Delaware:</b>		
enters into Clarke-McNary agreement.....	Mar., 2	
Forestry Department encourages planting.....	May, 2	
DeMolay, Order of, forest plantation.....	Jan., 4; Sept., 8	
<b>Demonstration:</b>		
farm woodland, Ohio.....	Sept., 6	
improvement cutting, New York.....	May, 8	
planting—		
Idaho.....	July, 8	
Ohio.....	July, 9	
Oklahoma.....	July, 8	
Pennsylvania.....	July, 8	
<b>Demonstration forest—</b>		
of Lehigh University.....	Mar., 7	
to be developed by Santa Cruz County, Calif.....	Mar., 3	
<b>Dendrology:</b>		
early flora of Yellowstone Park.....	Jan., 14	
golden larch.....	July, 19	
Honduras rosewood.....	Jan., 4	
manual of trees of the Malay Peninsula.....	Sept., 27	
tree-identification contest.....	Sept., 8	
Yale collection of tropical woods.....	Jan., 4	
See also Arboretum, Tree guide.		
Denison University plants idle lands.....	Nov., 4	
<b>Denmark:</b>		
experimental forestry service.....	May, 29	
study of forest soils, The, by Fr. Weis (review).....	May, 26	
Desert vegetation, Turkestan.....	Sept., 23	
<b>Disease, tree:</b>		
Armillaria contributing cause of death of oaks.....	Mar., 18	
blister rust, white pine—		
cankers eaten by squirrels.....	Sept., 19	
control work—		
by Boy Scouts.....	Sept., 5	
chemicals used to eradicate Ribes.....	July, 16	
New Hampshire.....	May, 2	
suggested in Europe.....	July, 22	
Vermont.....	May, 4; July, 6	
Western States.....	Jan., 13	
detected by school children.....	Sept., 17	
quarantine.....	May, 20; Sept., 19	
Ribes ecology in western white pine type.....	Nov., 11	
spread of.....	Jan., 10	
European larch canker.....	July, 16	
mildew on oaks.....	Mar., 18	
red spot.....	Jan., 2	
Woodgate rust, quarantine.....	Nov., 9	
Dismal swamp, fire protection for.....	Sept., 1	
Dogwood protected, Maryland.....	July, 5	
Doppel, Alfred A., advice on growing northern white pine.....	Sept., 7	
Dormon, Caroline, author of Forest Trees of Louisiana.....	May, 23	
<b>Douglas fir:</b>		
cone crop.....	Nov., 11	
growth, Siuslaw Forest.....	Nov., 8	
nursery methods for raising.....	July, 13	
planted in Wales.....	May, 23	
planting stock, effect of pruning.....	Mar., 28	
seed ordered by site.....	Sept., 19	
snags felled with explosives.....	July, 12	
survival in sterilized seed beds.....	Sept., 8	
threatened by larch canker.....	July, 16	
Drainage, effect on timber growth in swamps.....	Jan., 11	
Drake, George L.: article on Air Chambers for Steam Fire Pump.....	Jan., 7	
<b>Drought:</b>		
contributing cause of death of oaks.....	Mar., 18	
resisted by pines.....	July, 15	
<b>Dunes, sand:</b>		
afforestation, Turkestan.....	Sept., 23	
reclaimed by planting, Palestine.....	May, 22	
<b>Dunning, Duncan:</b>		
increment-measuring instrument invented by.....	Jan., 10	
tree classification devised by.....	Jan., 8	
<b>Ecology:</b>		
distribution limits of beech and oak, determination of.....	Sept., 22	
distribution of western yellow pine, Intermountain Region.....	May, 10	
Ribes, in western white pine type.....	Nov., 11	
<b>Economics:</b>		
inventory of Alabama State lands.....	July, 4	
land—		
classification, Minnesota.....	Mar., 1	
survey proposed, New York.....	Mar., 1	
use study, West Virginia.....	May, 17	
railway, bureau of, report on lumber.....	July, 27	
timber resources study, North Carolina.....	May, 4	
Wisconsin commercial forestry conference.....	May, 20; July, 27	
See also Profit, Returns, Taxation.		



**Eddy Tree Breeding Station:**

pine seed desired by.....	July, 11
work of.....	Jan., 14
Edelrasen des Waldes (review).....	May, 26

**Education, forestry:**

and extension, sections on.....	Jan., 4;
Mar., 4; May, 5; July, 6; Sept., 5; Nov., 4	
activity of Mississippi Forestry Commission.....	Mar., 3
at Boy Scout camps.....	Jan., 4, 5; Sept., 5
at Cornell University.....	May, 6
at Iowa State College of Agriculture.....	May, 6
at Ohio State University.....	Nov., 6
at Oregon Agricultural College.....	Jan., 4
at Pennsylvania State College.....	July, 8
at Purdue University.....	Jan., 5
at Syracuse University.....	May, 6
at the University of California.....	May, 6
at the University of Idaho.....	May, 6
at the University of Michigan.....	Mar., 7; May, 6
at the University of Montana.....	July, 8
at Utah Agricultural College.....	Jan., 4
at Virginia Polytechnic Institute.....	Nov., 4
at Yale University.....	Jan., 4; May, 5; Nov., 4
conference on.....	Mar., 4
in Finland.....	Sept., 24
of New York county agents.....	Sept., 7
Oxford forestry tour.....	Jan., 16
public—	
campaign—	
North Carolina.....	Nov., 6
Pasadena, Calif.....	Sept., 6
southern project, American Forestry Association.....	Sept., 5;
Nov., 1	
Texas.....	Sept., 5
short course, Wisconsin.....	Jan., 5
ranger, conference on.....	Sept., 6
technical, 100 years old in Sweden.....	Nov., 12
See also Schools, public.	

Eide, Erling, tree-form studies.....	July, 23
--------------------------------------	----------

Eldredge, Inman F., author of Management Plans.....	Mar, 21
---	---------

**Electricity:**

tree deaths attributed to.....	July, 23
See also Lightning.	

Elk kill on Absaroka National Forest.....	Mar., 11
---	----------

Engelmann spruce, nursery methods for raising.....	July, 13
--	----------

**England:**

Forest Products Research Laboratory, method of destroy-	
ing powder-post beetles.....	July, 23
See also Oxford.	

**Entomology:**

Bureau of—	
cooperator in larch sawfly study.....	May, 14
experiment in insect control in western yellow pine	
slash.....	May, 16
study—	
of bronze birch borer.....	July, 16
of effect of insect attack on shortleaf pine.....	Mar., 11
of insects as indicators of fire injury.....	Sept., 15
of white pine weevil control.....	Mar., 13
Congress, international.....	Mar. 11
forest, course offered by Oregon Agricultural College.....	Jan., 4
See also Insects.	

**Equipment:**

cultivation, wood-treating, and sawing, German.....	July, 22
fire—	
air chambers for steam fire pumps.....	Jan., 7
headlights.....	Sept., 24
pump designed by Ralph L. Morgan.....	Sept., 18
radio.....	May, 12
railway fusee.....	May, 10
tank cars maintained by railway.....	Sept., 24
tractors for fire-line building.....	Sept., 9
trailer.....	Nov., 3
water tanks.....	Sept., 17

**Equipment—Continued.**

mensuration—	
adaptation of slide rule.....	May, 17
caliper for small trees.....	July, 11
Fardi range finder.....	Mar., 13
increment measuring instrument.....	Jan., 10
timber scale sticks.....	Mar., 15
naval stores, fire stills converted to steam stills.....	Mar., 12
nursery, fertilizer sprinkler.....	May, 12
planting.....	Sept., 7
pruning saw.....	May, 19
root pruning.....	July, 13
safety device for edger.....	Sept., 16
trade-marking.....	July, 19
See also Airplane, Machinery, Towers.	
Erosion:	
alders protect stream banks.....	Mar., 17
control—	
experiment.....	Nov., 7
House committee report on.....	May, 13
planting, Tennessee.....	Jan., 3
in Korea.....	Sept., 23
protection on private land by French Government.....	Mar., 18
study in California.....	Jan., 1
See also Run-off.	
Eucalypts, growth in South Africa.....	Mar., 21
Europe:	
camera studies of forestry in.....	Jan., 21
distribution of oak and beech.....	Sept., 22
dying oaks.....	Mar., 18
white pine blister rust.....	July, 22
See also Argentina, Belgium, Czechoslovakia, England,	
Finland, France, Germany, Hungary, Ireland, Norway,	
Russia, Scotland, Sweden, Switzerland, Wales.	
Evans, R. M.: article on A New Nursery for the Mononga-	
hela National Forest.....	Mar., 9
Exhibit, forestry, wins prize for New York boy.....	Nov., 6
Exhibits, forestry:	
at Georgia forestry fair.....	Nov., 1
at Mississippi fairs.....	Nov., 6
at Pennsylvania fairs.....	Nov., 6
Exotics:	
American trees in Manchuria.....	Sept., 22
distributed by New York.....	May, 2
eucalypts in South Africa.....	Mar., 21
in Colorado.....	Sept., 4
in France.....	May, 23
in Ireland.....	May, 21
in Oklahoma.....	July, 8
in Palestine.....	May, 22
in Welch arboretum.....	May, 23
Mexican longleaf pine in South Africa.....	July, 24
Monterey pine—	
in Australia and New Zealand.....	July, 20
in South Africa.....	Mar., 21
on University of California campus.....	Nov., 5
Pinus strobus in Europe.....	July, 22
recommended for planting in Iowa.....	Mar., 5
Experiment:	
fire protection, on naval stores operation.....	Sept., 17
in deferred and rotation grazing.....	July, 17
in germination of seed soaked in sea water.....	Nov., 8
in insect control in line slash.....	May, 16
in producing wood pulp from extracted pine chips.....	Nov., 9
in spruce-budworm control.....	Jan., 15
in stimulating root growth on nursery stock.....	May, 9
in storage of planting stock.....	Sept., 14
in use of railway fuses for fire fighting.....	May, 10
in watershed protection.....	Nov., 7
Experiment station:	
agricultural—	
Colorado, bulletin on range revegetation.....	Mar., 22
New Jersey, soil study.....	May, 15
Ohio, planting stock distribution.....	July, 1
West Virginia, cooperator in study of land use.....	May, 17



## Experiment station—Continued.

## forest—

Acre-Haifa, Palestine, investigations in sand-dune reclamation.....	May, 22
Allegheny—	
experimental forest.....	May, 11
organized.....	Jan., 9
Appalachian—	
cooperator in study of fire and insect damage.....	Mar., 11
new headquarters.....	July, 14
study of acorns and oak seedlings.....	Sept., 12
California—	
cooperator in insect-control experiment.....	May, 16
erosion study.....	Jan., 1
new quarters for.....	July, 6
tree classification.....	Jan., 8
Central States—	
forestry bibliography.....	Sept., 29
headquarters established.....	Mar., 9
oak study.....	July, 11
Idaho, organized.....	May, 6
Lake States—	
cooperator in forest fire study.....	May, 27
observations on results of swamp drainage.....	Jan., 11
study of forest litter.....	Sept., 10
Northern Rocky Mountain—	
analysis of lightning-fire statistics.....	Jan., 6
nursery experiments.....	May, 9; Sept., 13
source-of-seed experiment.....	Sept., 12
yield and volume tables for western white pine.....	Jan., 21
of Java.....	May, 22
Pacific Northwest—	
seed storage experiment.....	July, 14
tests of railway fuses in fire fighting.....	May, 10
Southern, study of—	
effects of fire.....	Sept., 9
resin yields.....	May, 9
flood damage.....	May, 14
Southwestern—	
count of seed fall.....	Jan., 10
studies of climatic influences on distribution of species.....	May, 11
Swedish—	
source-of-seed studies.....	Sept., 20
range, Great Basin, watershed protection experiment.....	Nov., 7

## Experiments:

## fire-hazard—

with cigars and cigarettes.....	May, 20
with treated matches.....	Sept., 18
in breeding fast-growing pines.....	Jan., 14
in eradicating Ribes with chemicals.....	July, 16
in seed storage.....	July, 14; Sept., 13
planting and sowing, Texas.....	Mar., 3
sand-dune reclamation, Palestine.....	May, 22
seed-bed density.....	Sept., 13
seed-bed sterilization.....	Sept., 8
snag felling.....	July, 12
source of seed.....	May, 26; Sept., 12
with headlights for fire fighting.....	Sept., 24
with little-used species for boxes.....	Sept., 11

## Experimental forest:

leased by Allegheny station.....	May, 11
Schlich memorial.....	Sept., 23

## Explosives used in felling snags.....

Extension [Education and], sections on.....	Jan., 4;
	Mar., 4; May, 5; July, 6; Sept., 5; Nov., 4

## Fair:

State forestry, Georgia.....	Nov., 1
<i>See also Exhibits.</i>	

## Farm:

fence posts, osage orange for.....	July, 4
fertility, relation of forest types to.....	July, 19
forestry—	
course at Virginia Polytechnic.....	Nov., 4
taught in the Berry Schools.....	Nov., 6

## Farm—Continued.

## lands—

idle, county to reforest.....	Jan., 3
reclamation of, Tennessee.....	Jan., 3
plantation—	
black locust, Arkansas.....	Mar., 15
sold at profit.....	Sept., 4
planting, Idaho, black locust recommended for.....	Sept., 29
plantings—	
Colorado.....	Sept., 4
demonstration—	
Idaho.....	July, 8
Oklahoma.....	July, 8
Pennsylvania.....	July, 8
Ohio.....	July, 9; Sept., 6
Oregon.....	July, 5
woodland—	
demonstrations, Ohio.....	Sept., 6
Indiana, successful.....	Sept., 1
owners' association.....	Nov., 4
Virginia, profit from.....	May, 19
woodlands, black locust.....	July, 4, 18
<i>See also Farmers.</i>	

## Farmers:

Arkansas, forestry education campaign for.....	Sept., 7
Canadian—	
planting stock distributed to.....	Mar., 19
shelter belts helpful to.....	Nov., 13
Connecticut, forestry advice to.....	Sept., 7
Iowa, instructed on protection planting.....	Mar., 5
Nebraska—	
distribution of planting stock to.....	May, 7
shelter-belt planting by.....	Sept., 6
New York—	
improvement cutting demonstrated to.....	May, 8
planting by.....	July, 1; Nov., 4
North Dakota—	
forest nursery circular for.....	May, 29
plant shelter belts.....	Sept., 3
Ohio, distribution of planting stock to.....	July, 1
Timber scale sticks for use by.....	Mar., 15
tree-identification contest for.....	Sept., 8

## Fauna:

of forest litter.....	May, 22
<i>See also Wild life.</i>	

## Federal aid:

study of (review).....	Mar., 22
<i>See also Clarke-McNary law, Subsidy.</i>	

## Fellowship fund, Yale.....

Fellowships, forest research, Society of American Foresters report on.....	Mar., 5
--	---------

## Fertilizer:

method of spreading on seed beds.....	May, 12
use in nursery.....	May, 9
value of pine litter.....	Sept., 10

## Finland, forestry schools of.....

Fire, forest:	
---------------	--

characteristics related to forest type.....	Sept., 9
crews survey burns.....	Nov., 2

## damage—

destruction of pine litter.....	May, 19
in the United States.....	Nov., 2
study by North Carolina.....	May, 1
to western white pine.....	Jan., 10

## damages awarded for destruction of young growth.....

effect on Ribes.....	Nov., 11
----------------------	----------

## effects—

on cut-over pine lands.....	Sept., 9
on shortleaf pine.....	Mar., 11

equipment. *See* Equipment.

## hazard—

lessened by coated match stems.....	Sept., 18
tests with cigars and cigarettes.....	May, 20
injury, insects as indicators of.....	Sept., 15
loss in the United States reduced.....	Nov., 10



## Fire, forest—Continued.

losses reduced, Canada.....	Nov., 12	Flower families and ancestors (review).....	Nov., 14
prevention—		Foreign and Domestic Commerce, Bureau of, naval stores statistics.....	Nov., 10
campaign by West Coast firms.....	July, 7	Foreign forestry, sections on.....	Jan., 15;
educational effort, Texas.....	Sept., 5	Mar., 17; May, 21; July, 20; Sept., 20; Nov., 11	
on Southwestern national forests.....	Mar., 10	Forest:	
posters, Texas.....	Mar., 14	fires. <i>See</i> Fire.	
book cover, Louisiana.....	Sept., 5	influences. <i>See</i> Erosion, Floods, Rainfall, Run-off, Watershed protection.	
protection—		management. <i>See</i> Management, Silviculture.	
air patrol—		mensuration. <i>See</i> Mensuration.	
in Ontario.....	Sept., 24	nursery practice. <i>See</i> Nursery practice.	
on national forests.....	Sept., 11	planting. <i>See</i> Planting.	
allotments of Federal funds for.....	July, 3	products. <i>See</i> Laboratory, Lumber, Naval stores, Preservation, Utilization.	
appropriations. <i>See</i> Appropriation, Appropriations.		protection. <i>See</i> Protection.	
association. <i>See</i> Association.		research. <i>See</i> Experiment, Experiments, Laboratory, Research, Study, Studies.	
by volunteer companies, Delaware.....	May, 2	schools. <i>See</i> College, University.	
by volunteers, for national forest.....	May, 19	Service, United States—	
cooperative. <i>See</i> Clarke-McNary law.		publications of. <i>See</i> Bibliography.	
community, campaign for.....	July, 7	sections on work of.....	Jan., 6;
extended—		Mar., 8; May, 8; July, 10; Sept., 9; Nov. 7	
California.....	July, 6	Forestry:	
New Jersey.....	May, 4	appropriations. <i>See</i> Appropriation, Appropriations.	
Wisconsin.....	July, 6	associations. <i>See</i> Association.	
fire-line construction.....	Mar., 1; Sept. 9, 17	camps. <i>See</i> Camp.	
fireproofing of roads, California.....	May, 4	county. <i>See</i> County forestry.	
for Dismal Swamp.....	Sept., 1	education. <i>See</i> Education, forestry; Schools.	
in Maryland.....	July, 2	extension. <i>See</i> Extension.	
in Michigan.....	Mar., 2	farm. <i>See</i> Farm, Farmers.	
in the United States, areas covered by.....	Nov., 2	foreign. <i>See</i> Foreign forestry.	
in West Virginia.....	Mar., 2	industrial. <i>See</i> Industrial forestry.	
in Wisconsin.....	Mar., 2	legislation. <i>See</i> Legislation.	
local, in France.....	Sept., 24	municipal. <i>See</i> Municipal forestry.	
need for, in Minnesota.....	May, 27	State. <i>See</i> State forestry.	
on naval stores operation.....	Sept., 17	publications. <i>See</i> Bibliography.	
on Pfister-Vogel lands.....	Sept., 16	Forests:	
rules of Atlantic Coast Line Railroad.....	July, 18	county. <i>See</i> County forestry.	
talks heard by grand jury.....	Nov., 1	municipal. <i>See</i> Municipal forests.	
war veterans organize for.....	Sept., 1	national. <i>See</i> National forests.	
woodlands closed, New Hampshire.....	Sept., 4	State. <i>See</i> State forests.	
ranger's fight with.....	May, 4	Four-H Clubs. <i>See</i> Clubs.	
refusal to fight, penalty for, New York.....	Nov., 4	Foxworthy, F. W., author of Commercial Timber Trees of the Malay Peninsula.....	Sept., 27
resistance to, shown by Apache pine.....	July, 19	France:	
weather forecasts on the fire line.....	Nov., 11	extraction of gas from forest materials.....	Nov., 11
Fires, forest:		forestry prizes offered by Touring Club.....	Jan., 17
causes of.....	Nov., 2	local fire protection.....	Sept., 24
correlated with relative humidity.....	Mar., 17	management of State forests.....	Jan., 16
in British Columbia.....	Mar., 19	protection forests under regulation.....	Mar., 18
in Maryland.....	Mar., 2	reforestation.....	May, 23; July, 23; Sept., 21
in Michigan.....	Mar., 2	returns from public forests.....	Jan., 17; Nov., 12
in Minnesota.....	Mar., 2; May, 27	use of resin in soap permitted.....	July, 24
in New York, 1927.....	Jan., 3	Franconia Notch becomes public property.....	July, 1
in Pennsylvania, causation of.....	July, 2	Fungus. <i>See</i> Disease, Mycorrhiza.	
in the United States.....	Nov., 2	Fungi, soil, in seed beds.....	Sept., 8
in Wisconsin.....	Mar., 2	Furr, Gordon: article on How a Virginia Farmer Handled His Woodland.....	May, 19
lightning-caused, study of.....	Jan., 6	Fuses, railway, effective fire-fighting equipment.....	May, 9
logging-equipment, eliminated on national forests of Southwest.....	Mar., 10	Game:	
punishment for setting.....	July, 1	bobwhite farm, Virginia.....	Sept., 2
railroad-caused, Connecticut.....	July, 2	commission, Pennsylvania, lands under charge of.....	Sept., 2
reported by public, Ontario.....	Sept., 23	deer—	
Firs planted in Wales.....	May, 23	forests of Scotland, planting on.....	Nov., 13
Fitzwater, J. A.: article on Sealing Manual.....	May, 27	increase in Pennsylvania.....	July, 5
Fletcher, E. D., coauthor of Pruning White Pine for Profit.....	Sept., 28	kill of, Pennsylvania.....	May, 5
Flood:		preserve taken over by North Carolina.....	Sept., 2
control, House committee on, report.....	May, 13	elk kill on Absaroka Forest.....	Mar., 11
damage to young hardwoods.....	May, 14	preserves and farm authorized by North Carolina.....	Mar., 4; May, 5
<i>See also</i> Erosion, Run-off, Watershed protection.		recognized as important forest product, Germany.....	May, 27
Floods follow Hungary's loss of river and watershed control.....	July, 21	refuge, North Carolina.....	Mar. 4; May, 5
Florida:		Garver, R. D. [Zon, Raphael, and], logging study by.....	Jan., 19
cooperative educational project.....	Sept., 5	Gazogènes.....	Nov., 11
enters into Clarke-McNary agreement.....	Mar., 2		
forestry study in public schools.....	Mar., 7		
pines survive drought.....	July, 15		



<b>Genetics:</b>		
experiments, Eddy Tree Breeding Station.....	Jan., 14; July, 11	
explanation of twisted fiber.....	Jan., 17	
form hereditary in Scotch pine.....	Jan., 16	
research, Arnold Arboretum.....	July, 6	
seed—		
ordered according to site.....	Sept., 19	
selection, principles of.....	May, 26	
source of, experiments.....	Sept., 12, 20	
Geological Survey, maps issued by.....	Jan., 20	
<b>Georgia:</b>		
Agricultural College, pine-seed collection.....	July, 8	
central, slash pine grown in.....	Jan., 13	
cooperative educational project.....	Sept., 5	
crop of longleaf pine seed.....	July, 5	
effects of fire on cut-over pine areas.....	Sept., 9	
fire protection—		
experiment.....	Sept., 17	
on Pfister-Vogel lands.....	Sept., 16	
talks heard by grand jury.....	Nov., 1	
school forests of the Berry Schools.....	Nov., 6	
State forestry fair.....	Nov., 1	
<b>Germany:</b>		
book on seed selection.....	May, 26	
Douglas-fir seed ordered by site.....	Sept., 19	
lumber cut on State forests, Prussia.....	May, 22	
measures against blister rust suggested.....	July, 22	
new forest machinery and methods.....	July, 22	
report on seed-storage experiments.....	July, 14	
silvicultural practices.....	Jan., 16	
What a German forester can learn in America.....	May, 21	
<b>Germination:</b>		
of acorns, study of.....	Sept., 12	
of seed soaked in sea water.....	Nov., 8	
tests of stored seed.....	July, 14; Sept., 13	
<b>Gillett, Charles A.:</b>		
author of The Farm Nursery for Forest Trees.....	May, 29	
planting directed by.....	Sept., 3	
Gisborne, H. T., article on Lightning Fire Warnings.....	Jan., 6	
Gottlieb, A. W., study of slash decay.....	Sept., 8	
Graeber, R. W., tree identification contest arranged by.....	Sept., 8	
Graham, Samuel A.: article on A Possible Means of Larch Sawfly Control.....	May, 14	
<b>Graves, Henry S.:</b>		
address on forest-ranger education.....	Sept., 6	
opinion on American forest-school system.....	Mar., 4; May, 8	
<b>Grazing:</b>		
deferred and rotation, results with.....	July, 17	
[and watershed protection] experiment.....	Nov., 7	
See also Range.		
<b>Great Britain:</b>		
new forestry journal.....	Jan., 20	
See also England, Ireland, Scotland, Wales.		
Great Plains region, tree planting in.....	Sept., 29	
Greeves-Carpenter, C. F., author of The Care of Ornamental Trees.....	July, 27	
<b>Growth:</b>		
of Douglas fir, Siuslaw Forest.....	Nov., 8	
of experimental plantations, Wales.....	May, 23	
of immature stands, affected by raw humus.....	Sept., 14	
of Massachusetts plantation.....	Mar., 15	
of Mexican longleaf pine in South Africa.....	July, 24	
of Monterey pine overseas.....	July, 20	
of northern white pine plantation.....	Sept., 4	
of nursery stock, effect of density on.....	Sept., 13	
of planted loblolly pine, New Jersey.....	Mar., 15	
of Russian forests.....	Sept., 22	
of saksaul not determinable by rings.....	Sept., 23	
of shortleaf pine retarded by fire and insect attack.....	Mar., 11	
of slash pine, relation to gum yield.....	May, 9	
of timber in northern swamps.....	Jan., 11	
of top-pruned Douglas fir.....	Mar., 8	
on understocked plots.....	Jan., 8	
See also Mensuration.		
Guides, tree. See Tree guides.		
Haig, I. T., yield and volume tables prepared by.....	Jan., 21	
Haiti, California gives trees to.....	Nov., 3	
Hall, Ralph C.: article on The Bronze Birch Borer.....	July, 16	
Hanson, Herbert C., author of Revegetation of Waste Range Land.....	Mar., 22	
Hardtner, Henry E., reforestation by.....	Sept., 17	
<b>Hardwoods:</b>		
flood damage to.....	May, 14	
See also Alder, Beech, Birch, Chestnut, Locust, Oak, Osage orange, Walnut.		
<b>Harvard University:</b>		
Arnold Arboretum—		
additions to.....	July, 6	
endowment fund.....	Jan., 5	
forest—		
experiments in white pine weevil control.....	Mar., 13	
joint publication on pruning.....	Sept., 28	
slash-decay study on.....	Sept., 8	
Hayes, Doris W.: article on A good Book on Flowers.....	Nov., 14	
Headley, Roy: article on Radio on the Fire Line.....	May, 12	
Hemlock, improved market for, Alaska.....	Sept., 11	
<b>Heredity. See Genetics.</b>		
Hesselman, Henrik, editor of forestry journal.....	July, 29	
Hewitt, Charles J., reforestation bills introduced by.....	Mar., 1	
Hogs, protection of longleaf reproduction from.....	Jan., 13	
Hough, A. F.: article on Notes on the Oxford Forestry Tour of 1927.....	Jan., 16	
Hoyle, Mrs. A. E., illustrator of tree guides.....	May, 28	
Humidity, relative, danger point in Washington.....	Mar., 17	
<b>Humus:</b>		
formation and consistency of.....	May, 15	
raw, Alaska.....	Sept., 14	
See also Soil, Soils, Litter.		
Hungary, floods follow loss of river and watershed control.....	July, 21	
<b>Idaho:</b>		
covered by blister rust quarantine regulations.....	May, 20	
demonstrations, planting.....	July, 8	
importance of forest industries in.....	May, 6	
Iowa students camp in.....	May, 6	
Potlatch Timber Protective Association.....	May, 4	
University—		
bulletin on black locust.....	Sept., 29	
organizes forest experiment station.....	May, 6	
<b>Illinois:</b>		
enters into Clarke-McNary agreement.....	Mar., 2	
manual on woodland management.....	Sept., 26	
tree guide.....	Jan., 20	
Ilyessalo, Yrjö, author of The Forests of Finland.....	Jan., 8; Sept., 10	
Incendiarists, sentences imposed on.....	July, 1	
Index for 1927.....	Nov, 16.	
<b>India:</b>		
Burma forestry report.....	Sept., 21	
investigations into origin of twisted fiber.....	Jan., 17	
<b>Indiana:</b>		
Boy Scouts to start forests.....	May, 7	
farm woodland success.....	Sept., 1	
improvement cutting on State forest.....	Sept., 3	
osage orange for fence posts.....	July, 4	
Purdue University forestry camp.....	Jan., 5	
State forest enlarged.....	May, 2	
tree distribution.....	Nov., 3	
<b>Industrial forestry:</b>		
amendment to Clarke-McNary law proposed.....	Nov., 2	
Cooper River Timber Co. cooperating in fire study.....	May, 1	
fire protection code of Atlantic Coast Line Railroad.....	July, 18	
of Long-Bell Lumber Co.....	May, 19; Sept., 19	
planting by Great Southern Lumber Co.....	July, 15	
planting by timberland owners and operators, New York.....	Nov., 4	
projects described at forestry meeting.....	Mar., 14	
reforestation by timber companies, California.....	Mar., 4	
rubber production in Africa.....	July, 28	
selective logging indorsed by lumbermen.....	Sept., 20	
See also Commercial forestry; Logging, selective; Lumber company.		



## Insects:

as indicators of fire injury	Sept., 15
attacked with poison dust and fumes	Jan., 17
attacking California pines and their control (review)	July, 27
British bark beetles (review)	Mar., 22
bronze birch borer	July, 16
control of, in western yellow pine slash	May, 16
corn-borer, forest type indicator of area's susceptibility to effects of attack on shortleaf pine	July, 19
gipsy moth—	Mar., 11
eradicated from Quebec	Sept., 19
quarantine revised	Nov., 9
injury by, preceding death of oaks	Mar., 18
larch sawfly control	May, 14
powder post beetle, control of	July, 23
satin moth quarantine	Jan., 13
spruce budworm, airplane attack on	Jan., 15
termites, provision against damage by	Jan., 12
tip moth in Louisiana nursery	Jan., 2
western pine beetle, sale of timber infested by	July, 10
white pine weevil, control of	Mar., 13

Introduction, tree. *See* Exotics.

## Iowa:

Agricultural College forestry camp	May, 6
protection plantings in	Mar., 5
Ireland, State forestry in	May, 21
Irish Co., Charles F., method of aerating roots of shade trees	May, 17; July, 20

## Japan:

law to preserve natural monuments	Mar., 18
study of run-off	Sept., 20
Java, forest service	May, 22

Johnson, Fred R., coauthor of *Tree Planting in the Great Plains Region*

Sept., 29	
-----------	--

## Journal, forestry:

new British	Jan., 21
Swedish, changes policy	July, 29

Kansas, results of range experiment in	July, 17
--	----------

Keen, F. P., author of *Insect Enemies of California Pines and Their Control*

July, 27	
----------	--

Kempff, Gerhard, observations in planting experiment	Sept., 12
--	-----------

Kentucky, planting stock distribution	May, 5
---------------------------------------	--------

Kiwanis. *See* Clubs.

Knouf, C. E., timber scale formula developed by	May, 15
---	---------

Koch, Elers, coauthor of *Timber Growing in the Western White Pine and Larch-Fir Forests of the Northern Rocky Mountains*

Jan., 20	
----------	--

Köppen, Wladimir, studies of beech and oak	Sept., 22
--	-----------

Korea, forests of	Sept., 23
-------------------	-----------

Korstian, C. F.:

article on Intermountain Brush Lands not Potential Western Yellow Pine Sites	May, 10
--	---------

study of acorns and oak seedlings	Sept., 12
-----------------------------------	-----------

Kotok, E. I., fire study by	Sept., 9
-----------------------------	----------

Kümmel, Julius F., article on Effect of Pruning Douglas Fir Planting Stock	Mar., 8
--	---------

## Laboratory, forest products:

England, method of destroying powder post beetles	July, 23
United States—	

data on wood silos	July, 20
--------------------	----------

little-used species tested for boxes	Sept., 11
--------------------------------------	-----------

tests of New Zealand woods for newsprint	Sept., 14
--	-----------

wood pulp produced from extracted pine chips	Nov., 9
--	---------

University of Michigan	May, 6
------------------------	--------

## Lake States:

larch sawfly problem	May, 14
selective logging study in	Jan., 19

timber growing and logging practice in	May, 28
--	---------

timber growth in swamps	Jan., 11
-------------------------	----------

value of forest litter in	Sept., 10
---------------------------	-----------

*See also* Michigan, Minnesota, Wisconsin.

## Larch:

canker, European, appears in Massachusetts	July, 16
[fir] forests, northern Rocky Mountain, timber growing in the	Jan., 20

## Larch—Continued.

golden	July, 19
growth in Massachusetts plantation	Mar., 15
planted in Wales	May, 23
western, nursery methods for	July, 13

## Legislation:

Alabama, directs inventory of State-owned land	July, 4
conservation, Ohio council to work for	July, 6
forestry, West Virginia Kiwanis Clubs to work for	May, 4
France, for regulation of private forest land	Mar., 18
Georgia fire protection, enforcement of	Nov., 1
Ireland, for Government control of forest cutting	May, 21
Japan, authorizes designation of "natural monuments"	Mar., 18
Maryland, protecting wild flowers	July, 5
New Jersey, for fire protection of salt marshes	May, 4
New York—	

conservation, liberalized	July, 4
---------------------------	---------

creating reforestation investigative commission	July, 3
---	---------

reforestation, proposed	Mar., 1
-------------------------	---------

recommended by North Carolina Forestry Association	Sept., 3
--	----------

United States forestry—

major, enacted	May, 13
----------------	---------

pending in Seventieth Congress	Mar., 16
--------------------------------	----------

Wisconsin tax, land classified under	July, 2
--------------------------------------	---------

*See also* Appropriation, Appropriations, Clarke-McNary law.

Lehigh University, arboretum and demonstration planting	Mar., 7
---	---------

Lentz, G. H.: article on The 1927 Flood Damage to Young Hardwoods	May, 14
---	---------

Libraries, traveling forestry, Mississippi	May, 7
--	--------

Library of Michigan School of Forestry and Conservation	Mar., 7
---	---------

## Lightning:

characteristics of fires caused by	Jan., 6
danger indicated by color of clouds	May, 12

dry, explanation of	July, 19
---------------------	----------

## Litter, forest:

fauna of	May, 22
fertilizer value of	Sept., 10

pine, used as mulch	May, 19
---------------------	---------

raw humus formed by, Alaska	Sept., 14
-----------------------------	-----------

test for moisture content of	July, 12
------------------------------	----------

## Locust, black:

a farm crop for Idaho	Sept., 29
-----------------------	-----------

for farm planting, Tennessee	Jan., 3
------------------------------	---------

plantation, farm—

Arkansas	Mar., 15
----------	----------

Idaho	July, 18
-------	----------

New York	July, 4
----------	---------

## Logging:

practice, timber growing and — in the Lake States (review)	May, 28
--	---------

selective—

indorsed by lumbermen	Sept., 20
-----------------------	-----------

marking system for	Jan., 8
--------------------	---------

on French and German State forests	Jan., 16
------------------------------------	----------

operation, Sitgreaves National Forest	Sept., 11
---------------------------------------	-----------

study in Lake States	Jan., 19
----------------------	----------

*See also* Management, forest.

Los Angeles County, forestry work in 1927	Jan., 1
---	---------

## Louisiana:

conservation news publication	Jan., 20
-------------------------------	----------

fire-prevention book cover	Sept., 5
----------------------------	----------

fire protection progress in	Mar., 1
-----------------------------	---------

forestry in Boy Scout camps	Jan., 4
-----------------------------	---------

Four-H boys, prizes awarded to	Sept., 8
--------------------------------	----------

investigation of flood damage	May, 14
-------------------------------	---------

pine "straw" used as mulch	May, 19
----------------------------	---------

ranger's fight with fire	May, 4
--------------------------	--------

reforestation by Henry E. Hardtner	Sept., 17
------------------------------------	-----------

sentences imposed on incendiaries	July, 1
-----------------------------------	---------

State nursery	Jan., 2
---------------	---------

tree guide (review)	May, 28
---------------------	---------

## Lumber:

bulletin on, Bureau of Railway Economics (review)	July, 27
---	----------

production statistics	Jan., 19
-----------------------	----------

## Lumber—Continued.

company—	
Booth-Kelly, experimental planting by .....	July, 18
Great Southern—	
donates prizes for Four-H boys .....	Sept., 8
planting by .....	July, 15
Holt, practices selective logging .....	Sept., 20
Long-Bell—	
seed collection and planting stock production .....	May, 19
sells Douglas fir seed by site .....	Sept., 19
Michigan-California, plans for perpetual operation .....	Sept., 17
Pfister-Vogel, fire-protection policy .....	Sept., 16
St. Paul and Tacoma, plans for continuous timber production .....	July, 18
Sawyer-Goodman, practices selective logging .....	Sept., 20
Lumbermen, forestry course for .....	Jan., 5
MacAloney, H. J.: article on Mixed Stands the Best Protection Against White Pine Weevil .....	Mar., 13
McCarthy, E. F.: study of oak growth and yield .....	July, 11
test for moisture content of litter .....	July, 12
McCormick, W. C.: director of forestry educational project .....	Sept., 5
educational use of lookout towers .....	May, 7
MacDonald, Austin F., author of Federal Aid .....	Mar., 22
Machinery:	
device to prevent edger kick-backs .....	Sept., 16
for extracting gas from forest materials .....	Nov., 11
German forest .....	July, 22
logging, fire-prevention rules for use of .....	Mar., 10
tractors for fire-line building .....	Sept., 9
Macnab, A. T., observations on lightning storms .....	May, 12
McNary-Woodruff Act .....	May, 13
McSweeney-McNary bill approved .....	May, 13
Malay Peninsula, commercial timber trees of (review) .....	Sept., 27
Management:	
forest—	
in Burma .....	Sept., 21
in France and Germany .....	Jan., 16
in western white pine and larch-fir forests of the Northern Rocky Mountains .....	Jan., 20
plans (review) .....	Mar., 21
returns from. <i>See Returns.</i>	
timber marking system .....	Jan., 8
<i>See also Logging, selective; Protection, forest; Silviculture.</i>	
range. <i>See Range.</i>	
woodland. <i>See Farm, Woodland.</i>	
Manchuria, American trees in .....	Sept., 22
Maryland:	
forestry work, State .....	July, 2
Four-H clubs .....	Jan., 5
need for forest research in .....	Jan., 9
plantings of bald cypress .....	July, 5
protects dogwood .....	July, 5
windbreaks and shelter belts for (review) .....	May, 29
Massachusetts:	
European larch canker found in .....	July, 16
forestry program proposed for Worcester County .....	May, 3
growth of planted trees .....	Mar., 15
Matches, treated, tests with .....	Sept., 18
Mattoon, W. R.: article on Pruning White Pine for Profit (review) .....	Sept., 28
article on Slash Pine for Central Georgia .....	Jan., 13
coauthor of tree guides .....	Jan., 20; May, 28; Nov., 15
Memorial:	
to Charles Sprague Sargent .....	July, 6
to Sir William Schlich .....	Jan., 17; Sept., 23
Mensuration:	
caliper for small trees .....	July, 11
Fardi range finder .....	Mar., 13
form factor for Norway spruce .....	July, 23
increment measuring instrument .....	Jan., 10
method of preserving increment cores .....	Mar., 19
papers by Donald Bruce available .....	May, 29

## Mensuration—Continued.

relation of stump diameter to d. b. h. in western pines .....	Nov., 9
scaling manual (review) .....	May, 27
suggestion for the use of tables of basal areas .....	May, 17
timber scale formula .....	May, 15
timber scale sticks .....	Mar., 15
use of tree measurements form .....	Sept., 29
volume tables for New Jersey .....	July, 28
yield and volume tables—	
for western white pine .....	Jan., 21
in preparation, Argentina .....	Nov., 12
Merriitt, M. L., forestry lessons for children prepared by .....	July, 9
Metcalf, Woodbridge:	
article on The Berkeley Campus as an Arboretum .....	Nov., 5
visits to Four-H camps .....	Nov., 5
windbreak study .....	Jan., 12
Mice a factor in larch sawfly control .....	May, 14
Michigan:	
fire protection in .....	Mar., 2
Hartwick Pines Park .....	Jan., 2
Huron National Forest created in .....	Sept., 11
market for spruce and balsam brush .....	Nov., 3
national forest purchase areas approved .....	May, 13
University of—	
birch borer study .....	July, 16
forestry library .....	Mar., 7
offers degree of doctor of forestry .....	May, 6
school of forestry and conservation gets more space .....	May, 6
study of larch sawfly .....	May, 14
<i>See also Lake States.</i>	
Microorganisms, rôle in the transformation of organic matter in forest soils .....	May, 15
Mill-scale study, cooperative .....	July, 11
Miller, F. G., author of Black Locust and How to Grow It .....	Sept., 29
Miller, R. B., coauthor Illinois tree guide .....	Jan., 20
Minnesota:	
forest fires in (review) .....	May, 27
land classification in .....	Mar., 1
University of, larch sawfly study .....	May, 14
national forest, renamed .....	Sept., 13
<i>See also Lake States.</i>	
Mississippi:	
appropriation, forestry .....	July, 4
cooperative educational project .....	Sept., 5
exhibits, forestry, at fairs .....	Nov., 6
fire protection in .....	Jan., 1
first two years of forestry commission .....	Mar., 3
forestry slogan contest .....	Mar., 5
River—	
basin, map .....	Jan., 20
<i>See also Flood.</i>	
seed crop in coast counties .....	May, 8
timbered counties in .....	May, 2
traveling forestry libraries .....	May, 7
Missouri Forestry Association meeting .....	Mar., 14
Mitchell, J. A., author of Forest Fires in Minnesota .....	May, 27
Montana:	
Blackfoot Forest Protective Association .....	May, 4
University of, plans for school forest .....	July, 8
Monument nursery, germination tests .....	Sept., 13
Monuments, natural, Japanese law protects .....	Mar., 18
Morgan, Ralph L.: community forestry leader .....	July, 7
fire pump designed by .....	Sept., 18
Mork, Elias, studies by .....	July, 21
Morrill, W. J., recommends species for planting in Colorado .....	Sept., 4
Moth. <i>See Insects.</i>	
Motion pictures, forestry, shown:	
by North Carolina traveling forestry lecturer .....	Nov., 6
in American Forest Week observance .....	Sept., 6
in southern forestry educational project .....	Sept., 5
Munger, Thornton T.: article on Forests While You Wait .....	Nov., 8
Municipal forest of Warsaw, N. Y. .....	Jan., 1
Municipal forestry:	
blister rust control work, New Hampshire .....	May, 2



## Municipal forestry—Continued.

in Ohio.....	July, 1
legislation affecting, New York.....	July, 4
<i>See also</i> County forestry.	

## Munns, E. N.: article on—

A Biological Soil Problem.....	Mar., 17
A Book on Malay Trees.....	Sept., 27
Forest Soils.....	May, 26
Recommending a Book on Forest Botany.....	May, 28
Rubber Production in Africa.....	July, 28
Timber Growing in South Africa.....	Mar., 21
Munro, J. M., author of British Bark Beetles.....	Mar., 22
Mycorrhiza helps in establishing spruce.....	July, 21

## National forest:

Absaroka, elk kill.....	Mar., 11
Cherokee, headquarters.....	July, 15; Sept., 15
Columbia, De Molay forest.....	Jan., 4; Sept., 8
Coronado, natural area dedicated.....	July, 13
Deerlodge, lodgepole pine feeds charcoal pits.....	Jan., 14
Florida, renamed Choctawhatchee.....	Jan., 10
Huron:	
created.....	Sept., 11
Kiwanis plantation.....	Sept., 16
Kaniku, results of fire on.....	Jan., 10
Lassen, seed collection.....	Nov., 7
Lincoln, walnut burl cut on ranches.....	Sept., 16
Manti:	
forage seed sown.....	Sept., 13
grazing and watershed protection experiment.....	Nov., 7
Minnesota, renamed Chippewa.....	Sept., 13
Modoc, timber sale.....	July, 10
Monongahela, planting.....	Mar., 9
Mount Hood, snag-shooting tests.....	July, 12
Nantahala—	
game preserve.....	Mar., 4; May, 5
hewn ties cut.....	Mar., 9
Pisgah, study of fire and insect damage.....	Mar., 11
Plumas, damages recovered for destruction of young growth.....	Mar., 10
Reservation Commission.....	Jan., 9; Mar., 9; May, 13; July, 12
roads and trails.....	Nov., 8
Santa Barbara, fire on.....	Nov., 11
Sitgreaves, Mogollon working circle tapped.....	Sept., 11
Siuslaw, Douglas fir plantation.....	Nov., 8
Snoqualmie, growth of top-pruned Douglas fir.....	Mar., 8
Tongass, tree seed washed up by sea.....	Nov., 8
White Mountain—	
addition to.....	Jan., 9; July, 10
example of birch borer damage on.....	July, 16

## National forests:

air patrol.....	Sept., 11
areas approved for purchase for.....	Jan., 9; May, 13; July, 12
Cocconino and Tusayan, porcupine control.....	Mar., 12
French, returns from.....	Nov., 12
in Alaska, sales of hemlock.....	Sept., 11
in Arizona and New Mexico—	
logging fires eliminated.....	Mar., 10
tractors for fire-line building.....	Sept., 9
in California—	
and Nevada, smoking restricted on.....	July, 14
fire study.....	Sept., 9
municipa leamps.....	Nov., 10
military, abolished.....	Jan., 10; Sept., 11
receipts.....	Sept., 11
wilderness areas set aside.....	Sept., 9

## Natural area:

Santa Catalina, dedicated.....	July, 13
<i>See also</i> Virgin area, Wilderness.	
Natural areas, Japanese law to protect.....	Mar., 18

## Naval stores:

consumption, export, and import.....	Nov., 10
fewer resin ducts formed by fire-injured pines.....	Mar., 11
fire stills converted to steam stills.....	Mar., 12
improved turpentine methods reduce tree mortality.....	Mar., 10
operation, fire protection.....	Sept., 17

## Naval stores—Continued.

production by fast-growing pines.....	May, 9
studies, appropriation for.....	Sept., 18
use of resin in soap permitted, France.....	July, 24

## Nebraska:

American Forest Week observance.....	Sept., 6
planting stock distribution.....	May, 7
plantings.....	Sept., 4, 6
Stolley State Park.....	Jan., 3
Nevada, smoking restricted on national forests.....	July, 14

## New Hampshire:

Arbor Week observance.....	May, 7
blister rust control work.....	May, 2
community forestry, Richmond.....	July, 7
Franconia Notch becomes public property.....	July, 1
University extension service, directions for planting northern white pine.....	Sept., 7
Warner town forest.....	May, 3
Waterville tract purchased by Government.....	Jan., 9; July, 10
woodlands closed.....	Sept., 4
wood lot owners' association.....	Nov., 4

## New Jersey:

additions to State forests.....	May, 2
Agricultural Experiment Station, soils study.....	May, 15
experimental forest leased in.....	May, 11
loblolly pine plantation, growth of.....	Mar., 15
need for forest research in.....	Jan., 9
protection extended to marshes.....	May, 4
State forest purchases, 1927.....	Jan., 3
volume tables for.....	July, 28

## New Mexico:

fire lines built with tractors on national forests.....	Sept., 9
logging-equipment fires eliminated on national forests.....	Mar., 10
walnut burl cut on ranches.....	Sept., 16

## New York:

Boy Scouts, forestry work on camp ground.....	Jan., 3; Sept., 5
bulletin on Reforesting.....	July, 28
College of Agriculture, tree guide published by.....	May, 28
conservation law liberalized.....	July, 4
county—	
agents with forestry training.....	Sept., 7
forestry—	
Erie County.....	Jan., 3; May, 8
Lewis County.....	May, 3
Oswego County.....	May, 8
establishes seed extraction plants.....	Sept., 4
forest fires, 1927.....	Jan., 3
forestry bills introduced.....	Mar., 1
Four-H forestry clubs—	
enrollment.....	May, 8
planting.....	Mar., 6
prize awarded.....	Nov., 6
improvement cutting demonstrations.....	May, 8
new forest-fire district.....	Mar., 2
penalty to forest-fire law violator.....	Nov., 4
planting—	
by sportsmen.....	Jan., 3
by timberland owners and operators.....	Nov., 4
costs.....	May, 5
of State-raised stock.....	July, 1; Nov., 4
stock, lines offered by State.....	May, 2
railroad crew fights fire.....	July, 5
ranger school building dedicated.....	Sept., 6
reforestation investigative commission created.....	July, 3
school forest.....	July, 9
State purchases forest land.....	Jan., 1, 3; Mar., 4; May, 1; Sept., 2
Woodgate rust quarantine.....	Nov., 9
New Zealand:	
growth of Monterey pine in.....	July, 2
removes restrictions on timber exports.....	Sept., 24
woods tested for newsprint.....	Sept., 4
Newman, L. E., observations on blister rust cankers.....	Sept., 19
Noble fir, storage of seed.....	July, 14
North Carolina:	
cooperating in study of fire damage.....	May, 1

## North Carolina—Continued.

educational use of lookout towers.....	May, 7
effort to preserve virgin area.....	Sept., 2
erects lookout tower.....	Sept., 4
fire protection.....	Jan., 3
forestry association recommends legislation.....	Sept., 3
game preserves.....	Mar., 4; May, 5; Sept., 2
grows seedlings under contract.....	May, 5
motorized educational campaign.....	Nov., 6
new State nursery.....	July, 5
receives gift of land.....	July, 6
Smoky Mountain National Park, plans for.....	July, 18
State College, tree identification contest for farmers.....	Sept., 8
survey of timber resources.....	May, 4
telephone disk for warden's name.....	May, 8
trailer, fire equipment.....	Nov., 3

## North Dakota:

farm forest nurseries, circular on.....	May, 29
farmers plant shelter belts.....	Sept., 3
Four-H forestry.....	Jan., 4
grazing test in.....	July, 17

## Norway:

forest of Namdal, spruce regeneration in.....	July, 21
results of tree-form studies.....	July, 23
spruce, form factor for.....	July, 23
volume and increment of timber.....	Mar., 19

Nurseries, forest, of Los Angeles County.....	Jan., 1
---	---------

## Nursery, forest:

Boy Scout.....	Jan., 5
communal, France.....	Sept., 21

## Federal—

Bessey.....	May, 7, 12
for the Monongahela National Forest.....	Mar., 9
Monument.....	Sept., 13
Savenac.....	May, 9; Sept., 13
Wind River.....	Sept., 14

## practice—

broadcast sowing.....	July, 13
chemical to prevent weed growth.....	Jan., 2
for North Dakota farms.....	May, 29
in growing southern pines.....	Jan., 2
method of spreading fertilizer on seed beds.....	May, 12
movable nurseries, Belgium.....	Sept., 21
seed-bed density experiments.....	Sept., 13
sterilizing seed beds with steam.....	Sept., 8
stimulating root development.....	May, 9
storage of planting stock.....	Sept., 14
See also Genetics, Seed.	

soil problem, biological.....	Mar., 17
-------------------------------	----------

## State—

Louisiana.....	Jan., 2
North Carolina.....	July, 5
Wisconsin.....	Jan., 3

## See also Planting stock.

## Oak:

death following drought.....	July, 15
distribution in Europe.....	Sept., 22
dying, in Europe.....	Mar., 18
germination and early survival, study of.....	Sept., 12
leaves, laboratory tests with.....	May, 15
"salvage," ties hewn from.....	Mar., 9
study of growth and yield.....	July, 11

## Ohio:

conservation council formed.....	July, 6
Denison University, planting by.....	Nov., 4
distribution of planting stock.....	July, 1
farm woodland demonstrations.....	Sept., 6
plantings, demonstration.....	July, 9
State University—	
Central States Forest Experiment Station established at.....	Mar., 9
forestry course at.....	Nov., 6
study by.....	July, 19

## Oklahoma:

demonstration plantings.....	July, 8
tree guide.....	May, 28

## Olson, D. S.:

ideal seed-bed densities determined by.....	July, 13
records of weight of tree seed.....	May, 13

## Ontario:

airplanes for fire fighting and surveying.....	Sept., 24
fires reported by public.....	Sept., 23
forest industries.....	Nov., 13
forested area.....	Sept., 24

## Oregon:

Agricultural College offers forest entomology course.....	Jan., 4
American Forest Week contests.....	Nov., 5
Douglas fir cone crop.....	Nov., 11
planting on ranches.....	July, 5
Osage orange for fence posts.....	July, 4

## Oxford University:

forestry tour.....	Jan., 16
publication on forest botany.....	May, 28
Schlich memorial.....	Jan., 17; Sept., 23

## Pacific Coast Building Officials Conference, provisions against

termite damage.....	Jan., 11
Palestine, sand-dune reclamation.....	May, 22
Pan American Union, division of agricultural cooperation.....	July, 20

## Paper, manufacture of:

from extracted pine chips.....	Nov., 9
from New Zealand woods.....	Sept., 14

## Park:

national—	
Grand Canyon, map of.....	Jan., 20
Smoky Mountain, clearing the way for.....	July, 18
Yellowstone, early flora of.....	Jan., 14

## State—

dedicated in Nebraska.....	Jan., 3
Hartwick Pines, Michigan.....	Jan., 2
offered to California.....	Sept., 3
Quinebaug Pines, Connecticut.....	Nov., 3

## Pathology. See Disease.

Pearson, G. A., address at dedication of natural area.....	July, 13
--	----------

Pelts, V., author of article on desert vegetation in Turkestan.....	Sept., 23
---	-----------

## Pennsylvania:

blister rust survey.....	Sept., 17
causation of forest fires.....	July, 2
deer—	
increase.....	July, 5
kill of.....	May, 5
demonstration plantings on farms.....	July, 8
ecological study of.....	July, 19
fire crews survey burns.....	Nov., 2
growth of northern white pine plantation.....	Sept., 4
need for forest research in.....	Jan., 9
pine plantation sold at profit.....	Sept., 4
planting stock exhibited at fairs.....	Nov., 6
State College permits specialization in forestry course.....	July, 8
State forests—	

camp sites on.....	May, 4
income from.....	July, 4
land purchased for.....	May, 1
University of, cooperator in forest research.....	Jan., 9
women's clubs urge highway planting.....	July, 7

Person, Hubert L.: article on An Experiment in Insect Control in Western Yellow Pine Line Slash.....	May, 16
--	---------

Personal items, sections of.....	Jan., 18; Mar., 19; May, 24; July, 24; Sept., 25; Nov., 13
----------------------------------	--

Phillips, John, study of forest influence on rainfall.....	May, 22
--	---------

## Pine:

Apache, appears fire resistant.....	July, 19
areas, cut-over, effects of fire on.....	Sept., 9
Balkan white, suggested as substitute for northern white pine.....	July, 22
breeding experiments.....	Jan., 14
California, tree classification for.....	Jan., 8
chips, extracted, for wood pulp.....	Nov., 9
Jeffrey, seed collected on Lassen Forest.....	Nov., 7
Kauri, export limitations lifted.....	Sept., 24
litter—	
fertilizer value of.....	Sept., 10
used as mulch.....	May, 19



## Pine—Continued.

loblolly, growth of, New Jersey.....	Mar., 15
lodgepole, used in charcoal manufacture.....	Jan., 14
longleaf—	
growth under protection.....	Jan., 13
in Louisiana nursery.....	Jan., 2
Mexican, in South Africa.....	July, 24
seed crop.....	May, 8; July, 5; Nov., 3
Monterey—	
in Australia and New Zealand.....	July, 20
in South Africa.....	Mar., 21
northern white—	
and Scotch, growth in Massachusetts plantation.....	Mar., 15
for underplanting, Connecticut.....	Sept., 7
plantation sold at a profit.....	Sept., 4
planted, growth of.....	Sept., 4
protection against weevil.....	Mar., 13
pruning for profit.....	Sept., 28
rate of decay of slash.....	Sept., 8
results from pruning.....	May, 19
virgin, in Michigan park.....	Jan., 2
Norway, recommended for planting in New Hampshire.....	Sept., 7
shortleaf—	
effects of fire and insects on.....	Mar., 11
volume tables for.....	July, 28
slash, growth outside natural range.....	Jan., 13
Sonderegger.....	Jan., 2
western white—	
forests, timber growing in the.....	Jan., 20
limits for profitable cutting.....	July, 10
mensuration of.....	Nov., 9
nursery methods for raising.....	July, 13
Ribes ecology in stands of.....	Nov., 11
sensitive to fire.....	Jan., 10
yield and volume tables.....	Jan., 21
western yellow—	
methods for raising planting stock.....	July, 13
mensuration of.....	Nov., 9
nursery experiments with.....	May, 9; Sept., 8
planting experiment with.....	Sept., 12
possibility of establishing on intermountain brush lands.....	May, 10
seed—	
collected on Lassen Forest.....	Nov., 7
fall.....	Jan., 10
stored, viability of.....	Sept., 13
slash, line, insect control in.....	May, 16
white, blister rust. See Disease.	

## Pines:

California, insect enemies of.....	July, 27
drought resistant.....	July, 15
hard, quarantine on account of Woodgate rust.....	Nov., 9
improved methods of chipping.....	Mar., 10
movable nurseries for.....	Sept., 21
planted by Great Southern Lumber Co.....	July, 15
scale sticks for measuring.....	Mar., 15
slash, fast-growing, produce more gum.....	May, 9
southern, growing for profit (review).....	Sept., 29

## Plant Industry, Bureau of:

blister rust reports.....	Jan., 10, 13
discovers blister rust in Pennsylvania.....	Sept., 17
Ribes eradication experiment.....	July, 16
studies of Ribes ecology.....	Nov., 11

## Planting, tree:

by Boy Scouts.....	Jan., 13; July, 9
by Camp Fire Girls.....	Mar., 6
by Denison University.....	Nov., 4
by Four-H Clubs.....	Mar., 6; July, 9
by Great Southern Lumber Co.....	July, 15
by Lehigh University.....	Mar., 7
by Nebraska Bureau of Game and Fish.....	Sept., 4
by timberland owners and operators, New York.....	Nov., 4
by wood-lot owners' association, New Hampshire.....	Nov., 4
costs of, New York.....	May, 5

## Planting, tree—Continued.

demonstrations. See Demonstration.	
encouraged by Delaware Forestry Department.....	May, 2
experimental—	
in State forests, New Jersey.....	July, 5
in Wales.....	May, 2
experiments. See Experiment, Experiments.	
financed by DeMolays.....	Jan., 4; Sept., 8
highway—	
by Arkansas clubwomen.....	Mar., 7
by Maryland.....	July, 5
urged by Pennsylvania women's clubs.....	July, 7
in California.....	Mar., 4
in France and Germany.....	Jan., 16
in Ireland.....	May, 21
in New York.....	Jan., 3; July, 1, 23; Nov., 4
in Richmond, N. H.....	July, 7
in the Great Plains region (review).....	Sept., 29
in West Virginia.....	July, 9
memorial.....	July, 9
northern white pine, directions for.....	Sept., 7
on Colorado farms.....	Sept., 4
on deer forests, Scotland.....	Nov., 13
on Ohio farms.....	July, 9
on Oregon ranches.....	July, 5
on the Monongahela National Forest.....	Mar., 9
protection—	
by Los Angeles County.....	Jan., 1
in Canada.....	Jan., 15; Nov., 13
in Iowa.....	Mar., 5
in Nebraska.....	Sept., 6
in North Dakota.....	Sept., 3
Maryland, bulletin on.....	May, 29
value to orchards, California.....	Jan., 12
reclamation, on sand dunes—	
Palestine.....	May, 22
Turkistan.....	Sept., 23
rubber, Africa.....	July, 28
stock—	
distribution—	
amendment to Clarke-McNary provisions proposed.....	Jan., 2
by Canadian Government.....	Mar., 19
by Irish Free State.....	May, 21
by Nebraska.....	May, 7
by Tennessee.....	Jan., 3
exhibited at fairs, Pennsylvania.....	Nov., 6
production—	
by Long-Bell Lumber Co.....	May, 19
Texas.....	Nov., 4
under contract, by North Carolina.....	May, 5
production and distribution—	
by Alabama.....	Mar., 4
by French Government.....	May, 23
by Indiana.....	Nov., 3
by Kentucky.....	May, 5
by Los Angeles County.....	Jan., 1
by Maryland.....	July, 2
by New York.....	May, 2; July, 1; Nov., 4
by North Dakota.....	Sept., 3
by Ohio.....	July, 1
by Oregon.....	July, 5
by Ralph L. Morgan.....	July, 7
storage of.....	Sept., 14
Plantation:	
black locust, Arkansas.....	Mar., 15
Douglas fir, on Siuslaw Forest.....	Nov., 8
experimental, Wales.....	May, 23
growth of, Massachusetts.....	Mar., 4
loblolly pine, in New Jersey.....	Mar., 15
Michigan Kiwanis.....	Sept., 16
Pennsylvania, sold at profit.....	Sept., 4
Porcupine control in Arizona.....	Mar., 12
Posters, forest fire prevention, Texas.....	Mar., 14
Pratt, Joseph Hyde, leads effort to preserve virgin area.....	Sept., 2

## Preservation, wood:

creosoted wood silos.....	July, 20
industry grows.....	Nov., 10
new German method.....	July, 22
saves money to railroad.....	July, 20
primer, forestry, edition of.....	July, 29

Profit from forest management. *See Returns.*

## Protection:

forest—	
board, Federal, expanded.....	Mar., 16
<i>See also Disease, Insects, Fire, Hogs, Porcupine.</i>	
forests under regulation in France.....	Mar., 18
watershed. <i>See Watershed.</i>	

Pruning. *See Silviculture.*

Prussia, lumber cut on State forests of.....	May, 22
--	---------

Public Roads, Bureau of, national forest road construction by.....	Nov., 8
--	---------

Pulp, wood. *See Paper.*Pumps. *See Equipment, fire.*

Purdue University, forestry camp.....	Jan., 5
---------------------------------------	---------

## Quarantine:

gipsy moth, revised.....	Nov., 9
on Quebec Christmas trees lifted.....	Sept., 19
white pine blister rust.....	May, 20; Sept., 19
Woodgate rust, New York.....	Nov., 9
Quebec, importation of Christmas trees from.....	Sept., 19
Rabbits, nursery method lessens damage by.....	Sept., 21

## Radio:

forestry talks, Virginia.....	Jan., 3
on the fire line.....	May, 12

## Railroad:

Atlantic Coast Line, fire-protection rules.....	July, 18
Chicago, Burlington & Quincy, planting by.....	Sept., 6
Delaware, Lackawanna & Western, saves by treating ties.....	July, 20
ties cut on Nantahala National Forest.....	Mar., 9
train crew, fire fighting by.....	July, 5

## Railroads:

as cause of forest fires.....	Jan., 3; July, 2
display fire prevention posters.....	Mar., 14

## Railway:

Canadian Pacific—	
maintains tank cars.....	Sept., 24
snowbreaks.....	Jan., 15
Economics, Bureau of, bulletin on lumber (review).....	July, 27
fuses effective in fighting fire.....	May, 10

## Rainfall:

forest's influence on.....	May, 22; July, 17
influence on forest type.....	May, 10; May, 11
ratio to run-off, in Japanese study.....	Sept., 20

## Range finder, Fardi.....

Mar., 13
----------

## Range management—

course, Utah Agricultural College.....	Jan., 4
experiment.....	July, 17
reseeding, artificial.....	Sept., 13
revegetation, Colorado.....	Mar., 22

*See also Grazing.*

## Recreation:

[watershed protection and] forests purchased by New York.....	Jan., 1; Sept., 2
national forest area set aside for.....	Sept., 9
outdoor, handbook on.....	Sept., 28

*See also Camps.*

Reed, J. O., naval stores still method devised by.....	Mar., 12
--	----------

## Reforestation:

bills introduced in New York.....	Mar., 1
commission formed to investigate, New York.....	July, 3
in Burma.....	Sept., 21
in California.....	Mar., 4
in France.....	May, 23; July, 23; Sept., 21
restores spring.....	Sept., 17

*See also Planting.*

Reforesting, New York bulletin on.....	July, 28
--	----------

## Reineke, Lester:

article on A New Forest Instrument.....	Mar., 13
article on A Note on Volume Table Construction.....	Sept., 29
caliper devised by.....	July, 11

## Reproduction, forest:

artificial. *See Nursery practice, Planting.*

natural—

delayed by destruction of seed.....	May, 8
longleaf pine, under protection.....	Jan., 13
of western white pine after fire.....	Jan., 10
on cut-over pine areas, effects of fire on.....	Sept., 9
reliance on, in France and Germany.....	Jan., 16
studies of, Texas.....	Mar., 3

*See also Logging, selective; Seed; Silviculture.*

## Research, forest:

fellowships, report on.....	Mar., 5
in Denmark.....	May, 29
institute, Finland.....	Sept., 24
McSweeney-McNary bill approved.....	May, 13
Michigan University facilities for.....	May, 6
wilderness areas set aside for.....	Sept., 9

*See also Experiment, Experiments, Experiment station,**Laboratory, Studies, Study.*Resin: *See Naval stores.*

## Returns:

from farm woodlands.....	May, 19; Sept., 1
from growing southern pines, bulletin on.....	Sept., 29
from improvement cuttings—	
on Indiana State Forest.....	Sept., 2
on New York farms.....	May, 8
from Pennsylvania State forests.....	July, 4
from public forests, France.....	Nov., 12
from sale of pine plantation.....	Sept., 4
from town forest, Warner, N. H.....	May, 3
national forest.....	Sept., 11

Reviews. *See Bibliography, sections on.*

Rhoades, Verne: Article on Clearing the Way for the Smoky Mountain National Park.....	July, 18
---	----------

## Ribes:

ecology in western white pine type.....	Nov., 11
<i>See also Disease, blister rust.</i>	

## Roads:

forest, Swiss, Federal aid for.....	Nov., 11
national forest.....	Nov., 8

## Rodents:

acorns eaten by.....	Sept., 12
<i>See also Mice, Porcupine, Rabbits, Squirrels.</i>	

## Root:

of gum tree in Sahara.....	Mar., 19
pruning, implement for.....	July, 13

## Roots:

alders, protect stream banks.....	Mar., 17
mycorrhiza helps in establishing spruce.....	July, 21
of Bigtrees injured by boots of tourists.....	Sept., 16
on planting stock, method of stimulating development.....	May, 9
shade tree, method of aerating.....	May 17; July, 20

Rosewood, Honduras, identified.....	Jan., 4
-------------------------------------	---------

Rosin. *See Naval stores.*

Rubber production in Africa.....	July, 28
----------------------------------	----------

## Run-off:

forest litter, water-holding capacity of.....	Sept., 10
influence of forests on.....	July, 17; Sept., 20

*See also Watershed protection.*

## Russia:

forests of.....	Sept., 22
lumber shipment from.....	Jan., 17
Sahara, development of root of gum tree.....	Mar., 19

St. George, R. A.: article on—

Insects as Indicators of Fire Injury.....	Sept., 15
Some Effects Fire and Insect of Attack on Shortleaf Pine.....	Mar., 11

Sale, P. D.: Experiments with treated matches.....	Sept., 18
--	-----------

Sand. *See Dunes.*

Santa Catalina Natural Area dedicated.....	July, 13
--	----------

Sargent, Charles Sprague, memorial to.....	July, 6
--	---------

Savenac. *See Nursery.*Sawfly. *See Insects.*

Sawing, German apparatus for.....	July, 22
-----------------------------------	----------



## Sawmilling:

- safety device for edger..... Sept., 16  
school of, Finland..... Sept., 24

Scaling, timber. *See* Mensuration.

- Scandinavian foresters employed in the United States..... July, 9  
Schlich, Sir William, memorial to..... Jan., 17; Sept., 23

## Scholarship:

- awards in American Forest Week contest..... Nov., 5  
fund, Yale..... Nov., 4  
Oxford, memorial to Sir William Schlich..... Jan., 17; Sept., 23

## School, ranger:

- education, conference on..... Sept., 6  
New York, new building dedicated..... Sept., 6

## School forest:

- established by parent-teachers' associations..... July, 9  
given to Texas college..... Mar., 5  
of New York State Ranger School, addition to..... Sept., 6  
University of Montana, management plan..... July, 8  
of the Berry Schools..... Nov., 6

## Schools:

## forestry—

- conference in Berkeley, Calif..... Mar., 4  
in Finland..... Sept., 24  
*See also* College, University.

## public—

- Alaska, forestry lessons for..... July, 9  
forestry handbook purchased for..... Jan., 21  
Florida, forestry study..... Mar., 7  
Louisiana, fire-prevention book cover..... Sept., 5  
Mississippi—  
forestry instruction..... Mar., 3  
traveling forestry libraries..... May, 7  
Modoc County, Calif., forestry contest..... July, 9  
Nebraska, Arbor Day and American Forest Week observance..... Sept., 6  
Pasadena, forestry educational campaign in..... Sept., 6  
Pennsylvania, cooperate in search for blister rust..... Sept., 17  
Texas, fire prevention propaganda in..... Sept., 5  
secondary, Oregon, American Forest Week contests in..... Nov., 5

- Schrader, W. H., germination tests by..... Sept., 13

- Scotland, planting areas established on deer forests..... Nov., 13

## Seed:

## forest tree—

- acorns, study of..... Sept., 12  
American conifer, wanted for foreign use..... Sept., 11

## collection—

- by Four-H boys..... Jan., 5  
by Long-Bell Lumber Co..... May, 19  
Georgia Extension Service..... July, 8  
Lassen Forest..... Nov., 7

- Douglas fir cone crop, Oreg..... Nov., 11

- extraction plants established by New York..... Sept., 4

- longleaf pine, crop of..... May, 8; July, 5; Nov., 3

- noble fir, storage of..... July, 14

- pine, wanted by Eddy Tree Breeding Station..... July, 11

- remain good after soaking in sea water..... Nov., 8

- weight of..... May, 13

## western yellow pine—

- fall of..... Jan., 10  
stored, viability of..... Sept., 13

*See also* Genetics, Nursery practice.

- forage plant, sown on national forest..... Sept., 13

- Seitz, Walter, author of *Edekrassen des Waldes*..... May, 26

Sequoia. *See* Bigtrees.Shade trees. *See* Arboriculture.Shelter belt. *See* Planting, protection.

## Shepard, Ward: article on Forest Research Fellowships

- Recommended..... Mar., 5

- Show, S. B., fire study by..... Sept., 9

## Silvics:

- acorns and oak seedlings, study of..... Sept., 12  
Apache pine fire resistant..... July, 19  
count of western yellow pine seed fall..... Jan., 10  
drought-resistant pines..... July, 15  
measurement of root of Sahara gum tree..... Mar., 19

## Silvics—Continued.

- mycorrhiza helps in establishing spruce..... July, 21  
raw humus, Alaska..... Sept., 14  
study of pine litter..... Sept., 10

## Silviculture:

- European, tendencies of..... May, 1  
growing slash pine outside its natural range..... Jan., 13  
growth of swamp forests improved through drainage..... Jan., 11  
new German equipment..... July, 22  
of northern white pine..... Sept., 7  
on German forests..... Jan., 16  
protection against white pine weevil..... Mar., 13  
pruning—

- Douglas fir planting stock..... Mar., 8

- northern white pine..... May, 19; Sept., 28

- root, implement for..... July, 13

- timber growing and logging practice in the Lake States..... May, 28

- tree classification for California pine forests..... Jan., 8

- See also* Cuttings, improvement; Experiments; Logging, selective; Nursery practice.

- Sim, T. R., author of *Tree Planting in South Africa*..... Mar., 21

## Site:

- Douglas fir seed ordered by..... Sept., 19  
factors. *See* Climate, Rainfall, Soil, Soils.

- Sitka spruce, nursery experiment with..... Sept., 8

## Slash:

- line, western yellow pine, insect control in..... May, 16  
northern white pine, rate of decay..... Sept., 8

## Smoking:

- materials, fire hazard tests with..... May, 20; Sept., 18  
restricted on national forests..... July, 14

- Snags felled with explosives..... July, 12

- Snakes and snake bites..... May, 18

- Snowbreaks, railway, Canada..... Jan., 15

- Snyder, Thomas E., provisions against termite damage recommended by..... Jan., 12

## Society:

- for Protection of New Hampshire Forests..... July, 1

- of American Foresters..... Mar., 14; July, 20

- of Foresters of Great Britain publishes journal..... Jan., 20

## Soil:

- forest, in southeastern Alaska..... Sept., 14  
seed-bed. *See* Nursery practice.

*See also* Humus, Litter.

## Soils, forest:

- American, Swiss scientist writes of..... Nov., 12  
part in determining boundaries of type..... May, 10

- role of microorganisms in transformation of organic matter in..... May, 15

- The study of (review)..... May, 26

- Yale extends work in..... May, 5

- Somerville, William, author of *How a Tree Grows*..... May, 28

- Soudek, Stepan, study of fauna of forest litter..... May, 22

## South Africa:

- growth of Monterey pine in..... July, 20  
Mexican longleaf pine in..... July, 24

- mist rains intercepted and deposited by forests..... May, 22

- timber growing in..... Mar., 21

## South Carolina:

- Cornell students camp in..... May, 6  
forestry appropriation..... May, 1

- Sowder, A. M., gives planting demonstrations..... July, 8

## Sowing:

- broadcast, in seed beds..... July, 13  
of seed of forage plants..... Mar., 22

## Sparhawk, W. N.:

- article on Forest Thoroughbreds..... May, 26  
author of *Why Grow Timber?*..... Sept., 28

- Spaulding, Perley: Article on The European Larch Canker..... July, 14

## Spruce:

- brush, a market for..... Nov., 3  
establishment helped by mycorrhiza..... July, 21

- Norway, form factor for..... July, 23

- planted, in Wales..... May, 23

- Squirrels eat blister rust cankers..... Sept., 19



## Standards, Bureau of, fire-hazard tests with smoking materials

State forest:	May, 20; Sept., 18
Connecticut, land purchased for	Mar., 3
given to North Carolina	July, 6
Indiana	May, 2; Sept., 3
land, acquisition by New York	Jan., 1; Sept., 2
presented to Vermont	Mar., 3
State forestry, sections on	Jan., 1;
	Mar., 1; May, 1; July, 1; Sept., 1; Nov., 1
State forests:	
Alabama, new	July, 4
British Columbia, created	Sept., 24
France—	
returns from	Nov., 12
silviculture on	Jan., 16
Germany—	
lumber cut on	May, 22
silviculture on	Jan., 16
Ireland	May, 21
New Jersey—	
additions to	Jan., 3; May, 2
experimental plantings on	July, 5
New York buys land for	Jan., 1, 3; Mar., 4; May, 1; Sept., 2
Pennsylvania—	
camp sites leased	May, 4
income from	July, 4
purchase of land for	May, 1
Vermont, acreage increased	Sept., 2
Statistics, forest, reference book of	Jan., 19
Sterilization:	
of lumber, to destroy powder post beetles	July, 23
of seed-bed soil	Sept., 8
Stills, fire, for naval stores, adapted to use of steam	Mar., 12
Stock, planting. <i>See</i> Planting.	
Stockbridge, Helen E., bibliographies compiled by	July, 27; Sept., 29
Stone, Bonnell H., fire-protection policy	Sept., 16
Storage:	
of seed, experiments in	July, 14; Sept., 13
planting stock uninjured by	Sept., 14
Studies:	
birch borer	July, 16
naval stores, appropriation for	Sept., 18
of climatic influences on distribution of species	May, 11
of distribution of beech and oak in Europe	Sept., 22
of natural reproduction of pine, Texas	Mar., 3
of western yellow pine seed fall	Jan., 10
reforestation, Texas	Mar., 3
<i>See also</i> Experiments.	
Study:	
ecological, of Pennsylvania	July, 19
erosion, California	Jan., 1
mill-scale, in eastern national forests	July, 11
of acorns and oak seedlings	Sept., 12
of decay rate of slash	Sept., 8
of deferred and rotation grazing	July, 17
of effects of fire on cut-over pine areas	Sept., 9
of factors determining forest type	May, 10
of fauna of forest litter	May, 22
of fire damage, North Carolina	May, 1
of fires on the national forests of California	Sept., 9
of flood damage to hardwoods	May, 14
of forest soil, need for	May, 26
of forest's influence on rainfall	May, 22
of land use in West Virginia	May, 17
of the larch sawfly	May, 14
of lightning—	
fires	Jan., 6
storms	May, 12
of oak growth and yield	July, 11
of organic matter in forest soils	May, 15
of planting stock storage	Sept., 14
of radio problems	May, 12
of resin yields	May, 9
of run-off	Sept., 20

## Study—Continued.

of value of forest litter	Sept., 10
of windbreaks	Jan., 12
<i>See also</i> Experiment.	
Subsidy:	
for forest road building, Switzerland	Nov., 11
reforestation procured by, France	May, 23; July, 23; Sept., 21
Swamp forests:	
improved by drainage	Jan., 11
larch sawfly in	May, 14
Sweden:	
effect of draining swamp forest	Jan., 11
forestry journal changes policy	July, 29
method of preserving increment cores	Mar., 19
source-of-seed experiment	Sept., 20
technical forestry 100 years old in	Nov., 12
Switzerland:	
alder roots protect stream banks	Mar., 17
Federal aid for forest road building	Nov., 11
scientist writes of American soils	Nov., 12
tree deaths attributed to electricity	July, 23
Syracuse University, field work for forestry seniors	May, 6
Tamarack:	
growth affected by drainage	Jan., 11
protection from larch sawfly	May, 14
subject to European larch canker	July, 16
Taxation, forest:	
Federal inquiry—	
appropriation for	July, 3
field work	May, 11
progress reports	July, 29
land classified under forest crop law, Wisconsin	May, 20; July, 2
Taylor, R. F.:	
article on Raw Humus	Sept., 14
germination experiment by	Nov., 8
Telford, C. J., author of woodland management manual	Sept., 26
Temperature:	
under bark, bearing on decay rate of slash	Sept., 8
<i>See also</i> Climate.	
Tennessee:	
planting	Jan., 3
Smoky Mountain National Park, plans for	July, 18
Texas:	
Agricultural College, forest given to	Mar., 5
chamber of commerce to promote forestry practices	Sept., 3
fire-prevention effort	Sept., 5
Four-H forestry work	Mar., 7
longleaf pine crop	Nov., 3
lookout towers erected	July, 4
planting—	
and sowing experiments	Mar., 3
stock production	Nov., 4
publishes tree guide	Nov., 15
snake-bite record	May, 18
Thunderstorm, dry, explanation of	July, 19
Tillotson, C. R.: article on A Manual of Woodland Management	Sept., 26
Timber growing:	
and logging practice in the Lake States (review)	May, 28
black locust, recommended for Idaho farms	Sept., 29
campaign among Arkansas farmers	Sept., 7
in western white pine and larch-fir forests of the northern Rocky Mountains (review)	Jan., 20
need for, in the United States	Sept., 28
pine, for profit in the South	Sept., 29
<i>See also</i> Industrial forestry; Management, forest; Silviculture.	
Tower, lookout, erected by North Carolina	Sept., 4
Towers, lookout:	
as educational tools	May, 7
North Carolina	Jan., 3
overlooking Dismal Swamp	Sept., 1
Texas	July, 4
Virginia	July, 4



Town forest:		
profitable, Warner, N. H.	May, 3	
See also County forestry.		
Tractors. See Equipment.		
Trade-marking adopted by Western Pine Association	July, 19	
Trails, national forest	Nov., 8	
Tree guide:		
Illinois	Jan., 20	
Louisiana, New York, Oklahoma	May, 28	
Texas	Nov., 15	
Trenk, Fred B., author of Windbreaks and Shelter Belts for Maryland	May, 29	
Tropics, wood specimens from, in Yale collection	Jan., 4	
Turkestan, forest vegetation in	Sept., 23	
Turpentine. See Naval stores.		
Type, forest:		
climax, establishment aided by drought	July, 15	
factors determining	May, 10, 11	
fire characteristics related to	Sept., 9	
former, indication of area's susceptibility to corn borer	July, 19	
relation to farm fertility	July, 19	
western white pine, Ribes ecology in	Nov., 11	
University. See California, Cornell, Denison, Harvard, Idaho, Lehigh, Michigan, Minnesota, Montana, Oxford, Pennsylvania, Purdue, Syracuse, Washington, Wisconsin, Yale.		
Utah Agricultural College, forestry course	Jan., 4	
Utilization, wood:		
courses at Virginia Polytechnic	Nov., 4	
extraction of gas from wood, charcoal, etc.	Nov., 11	
little-used species tested for boxes	Sept., 11	
longleaf pine feeds charcoal pits	Jan., 14	
of hemlock, Alaska	Sept., 11	
of New Zealand woods for newsprint	Sept., 14	
of spruce and balsam brush	Nov., 3	
of walnut burl	Sept., 16	
pulp from extracted pine chips	Nov., 9	
ties hewn from "salvage" oaks	Mar., 9	
Vermont:		
adds to State forest acreage	Sept., 2	
blister rust control work	May, 4	
State forest presented to	Mar., 3	
Virgin forest area:		
North Carolina	Sept., 2	
See also Natural area, Wilderness.		
Virgin forest areas, value for scientific study	May, 21, 26; July, 13	
Virginia:		
bobwhite farm	Sept., 2	
farmer's handling of woodland	May, 19	
fire protection for Dismal Swamp	Sept., 1	
forestry radio talks	Jan., 3	
new lookout tower	July, 4	
Polytechnic Institute, forestry courses	Nov., 4	
Volume tables. See Mensuration.		
Von Maltzahn, H. F.: article on What a German Forester Can Learn in America	May, 21	
Von Monroy, Doctor, describes new German forestry equipment and methods	July, 22	
Von Tubeuf, Doctor, suggests measures against white pine blister rust	July, 22	
Wahlenberg, W. G., nursery experiments by	Sept., 13	
Wakeley, Philip C.: article on:		
Forest Planting at Bogalusa	July, 15	
What Price Natural Regeneration?	May, 8	
Which Side of the Fence?	Jan., 13	
Waksman, S. A., author of The Role of Microorganisms in the Transformation of Organic Matter in Forest Soils	May, 15	
Wales, arboretum in	May, 23	
Walnut burl cut in New Mexico	Sept., 16	
Washington:		
De Molays finance planting	Jan., 4; Sept., 8	
Washington—Continued.		
Forest Fire Association, report	Mar., 17	
University of, nursery experiments	Sept., 8	
Watershed protection:		
experiment, range	Nov., 7	
land purchased for, New York	Jan., 1; Sept., 1	
planting by Los Angeles Co.	Jan., 1	
reforestation restores spring	Sept., 17	
See also Run-off.		
Waterville tract purchased by Government	Jan., 9; July, 10	
Watkins, Clayton W.:		
arranges planting stock distribution	May, 7	
plantings reported by	Sept., 6	
Weather Bureau:		
forecasts on fire line	Nov., 11	
Beaufort wind scale	July, 11	
Webster, C. B.:		
coauthor of Forest Trees of Texas	Nov., 15	
Four-H forestry work directed by	Mar., 7	
Weed growth in seed beds, prevention of by:		
steaming	Sept., 8	
sulphuric acid treatment	Jan., 2	
Weis, Fr., author of The Study of Forest Soils	May, 26	
West Virginia:		
improves its fire score	Mar., 2	
Kiwanis clubs organize forestry committee	May, 4	
new fire towers	Nov., 3	
planting	July, 9	
study of land use	May, 17	
Whitford, H. N., coauthor of Rubber Production in Africa	July, 28	
Wild life. See Birds, Game, Rodents,		
Wilderness areas:		
set aside in Rocky Mountain district	Sept., 9	
See also Natural areas, Virgin areas.		
Williams, W. K., directs forestry education campaigns	Jan., 5; Sept., 7	
Wilson, H. M., fire-protection experiment	Sept., 17	
Wind velocity, how to estimate	July, 11	
Wind River Nursery, storage of planting stock	Sept., 14	
Windbreak. See Planting, protection.		
Winegar, B. M., information on tree snowbreaks	Jan., 15	
Wisconsin:		
commercial forestry conference	May, 20; July, 27	
fire protection in	Mar., 2	
forest crop law, land listed under	Jan., 3; May, 20; July, 2	
protection system extended	July, 6	
State nursery enlarged	Jan., 3	
University of, woodsmen's short course	Jan., 5	
See also Lake States.		
Wood utilization. See Utilization.		
Woodgate rust quarantine	Nov., 9	
Woodland:		
farm. See Farm.		
management—		
a manual of	Sept., 26	
advice given by State	July, 2	
Woods, J. B., classifies seed for sale according to site	Sept., 19	
Woodsmen, short course in forestry for	Jan., 5	
Wyman, Lenthall:		
article on Drought-Resistant Pines	July, 15	
study of resin yields	May, 9	
Yale University:		
changes forestry courses and requirements	May, 5	
fellowship and scholarship fund	Nov., 4	
offers Ph. D. in forestry	Jan., 4	
tropical wood collection	Jan., 4	
Yellowstone National Park, early flora of	Jan., 14	
Zon, Raphael:		
article on Improving Timber Growth in Northern Swamps	Jan., 11	
author of Timber Growing and Logging Practice in the Lake States	May, 28	
[and Garver, R. D.] logging study by	Jan., 19	